

UNIVERSIDAD DE LAS AMÉRICAS PUEBLA



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# INSTITUTIONAL CATALOG 2020

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UDLAP





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# HISTORY

**U**niversidad de las Américas Puebla (UDLAP) was founded in 1940 as Mexico City College in the Nation's capital. In order to clearly reflect the brotherhood between the United States and Latin American countries, in the early 60s it changed its name to University of the Americas. By then, the prestige of its professors and their research projects, such as the distinguished Archeology program in Oaxaca, positioned it abroad and in Mexico as one of the best options for young people looking for an excellent education with a bicultural vision.

In 1966, the Mary Street Jenkins Foundation donated the funds to establish a new campus in the ancient town of Cholula, at the 80-hectare hacienda *Santa Catarina Mártir*, in a valley between the *Popocatepetl* and *Iztaccíhuatl* volcanos. Under a new name - *Universidad de las Américas Puebla* - and with an innovative educational project that included opening the Schools of Arts and Sciences, Engineering, and Business and Economics, the university received the acceptance, support, and official recognition of the federal Secretary of Public Education and the Southern Association of Colleges and Schools Commission on Colleges - SACSCOC, as well as that of the business sector and regional governments.

In 1985, the university split, both legally and ideologically, from the Civil Association in Mexico City, under the name of *Fundación Universidad de las Américas, Puebla*. It was constituted based on one philosophical principle: education with a humanist, scientific, and universal spirit, as well as academic excellence and freedom to teach, which has consolidated through the years into the most important private education institution in the country.

At UDLAP, history has taught us that an active conscience and community participation is transcendental to guarantee the success of each and every person who belongs to the university community. It is thus that the triumphs and advances of

different disciplines and fields of knowledge position it as a leader. In this sense, one cannot mention *Universidad de las Américas Puebla* without invoking at the same time the great victories of its *Aztecas* sports teams, outstanding since their beginnings in the following areas: American football, soccer, taekwondo, basketball, tennis, and women and men's track and field. Its participations have given the university a leading role in the CONADEIP Premiere League.

Likewise, the *Aztecas* have also evolved in the cultural environment, offering the general public shows of impeccable artistic execution: folkloric dance, dance, chamber music, opera, theater, cinema, fine arts, to name a few of the most relevant activities exhibited in its facilities and cultural extensions, such as the *Capilla del Arte* in downtown Puebla.

The classrooms of the five current schools at UDLAP, Social Science, Humanities, Engineering, Science, and Business and Economics, modernized in the last years to meet the advancing standards of the technological and scientific era, have been home, since 1940, to seventy-seven generations that have stood out in the world in research, diffusion, and consulting achievements. The modern labs, classrooms, sports facilities, library, information technology, and residential colleges have contributed to create a favorable and privileged environment for students and academics to thrive.

# INSTITUTION PROFILE

## ORGANIZATIONAL STRUCTURE

The governability of *Fundación Universidad de las Américas Puebla* is defined in its statutes, which recognize the Board of Trustees as the maximum authority that owns and watches over the university's heritage and has a final decision in the selection of the President.

The Business Council is a collegiate structure that decides, watches over, and protects institutional integrity and the adequate use of resources. This council overlooks the strategic

plan, actions, and goals achieved by UDLAP, recognizing their impact in meeting the mission and safeguarding the ethical and financial interests.

The Academic Council is a legislative academic body whereas the Administrative Council is the legislative administrative one, both recognized by the *Fundación Universidad de las Américas Puebla's* Board of Trustees.

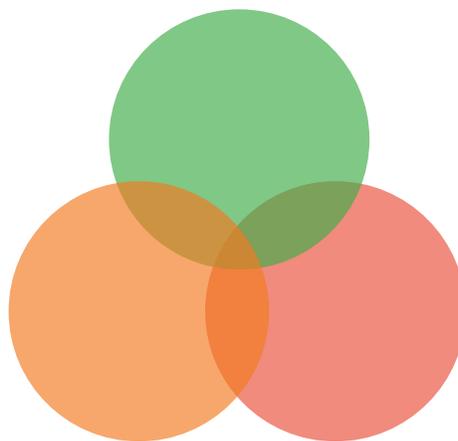
### BOARD OF TRUSTEES

#### BUSINESS COUNCIL

- It leads the selection and evaluation of the President.
- Oversees the use of resources and budget allocation.

#### ACADEMIC COUNCIL

Legislative body that defines the university's academic norms and policies.



#### ADMINISTRATIVE COUNCIL

Legislative body that defines norms and administrative policies of the university.

## UDLAP ORGANIZATIONAL CHART

The institution has developed its own organizational structure that supports the university's identity and philosophy, allows it to reach its institutional objectives, and regulates the influence of individual variations on organization, defining decision-making in the structure.

The Business Council proposes candidates to the *Fundación Universidad de las Américas Puebla's* Board of Trustees, who name the President, on whom they delegate the authority to perform the functions of a Chief Executive.



Name	Position
Luis Ernesto Derbez Bautista	President
Cecilia Anaya Berríos	Academic Vice President
Martha Laura Ramírez Dorantes	Dean of the School of Arts and Humanities
José Daniel Lozada Ramírez	Dean of the School of Science
Raphael Steger Cataño	Dean of the School of Social Sciences
René Alejandro Lara Díaz	Dean of the School of Engineering
Sergio Picazo Vela	Dean of the School of Business and Economics
Mónica Ruiz Huerta	Administrative Vice President
Ma. del Carmen Palafox Ramos	Student Affairs Vice President
Mario Vallejo Pérez	Finance and Institutional Advance Vice President.
Fernando Thompson de la Rosa	Information Technologies General Manager
Lorena Martínez Gómez	Planning and Institutional Administration General Manager
Mayra Ortiz Prida	Office of The President General Manager
Sergio Arturo Castro Medina	Cultural Promotion General Manager
Consuelo Cristina García Gil	Director of Medical Services and Sports Rehabilitation
Samuel Kim Mun	Director of Security

# PHILOSOPHY

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UDLAP's institutional philosophy is defined from the vision the university pursues, giving life to its current mission. The mission displays the strategic guidelines, whose objectives and goals are focused on the key principles, thus promoting a conduct based on UDLAP's values.

## MISSION

To participate in the development of society by educating critical, creative, and innovative professionals, who are trained at the highest technical level and who create pertinent research. All of this with a social conscience that demands an equitable distribution of the benefits of globalization.

## VISION

To be the leading university in Latin America in study programs and in scientific, cultural, sports, and public policy programs that meet the challenges presented by globalization.

## VALUES

The values that differentiate the members of the UDLAP Community are

- **FREEDOM WITH RESPONSIBILITY**

Members of the university community will act with independence of criteria and creativity, exercising their freedom of thought, research, and expression with responsibility. The university community will promote freedom of research and teaching as pillars to create knowledge.

- **TOLERANCE AND NON-DISCRIMINATION**

Real knowledge is created and shared only in an environment of mutual respect for others, for their opinions and diversity. Therefore, the university community will seek plurality in a respectful environment, strictly rejecting any type of discrimination motivated by ethnic or national origin, gender, age, disability, social or economic condition, health condition, religion, opinion, preference, marital status or any other that threatens human dignity.

- **HONESTY AND INTEGRITY**

Members of the university community commit to seeking justice, basing themselves on it and acting with integrity.

- **SOLIDARITY**

The university community will collaborate in joint actions in favor of itself and its environment.

- **TRANSPARENCY**

Members of the university community commit to sharing knowledge, providing - according to the activities of their roles - true, complete, clear, and opportune information through the appropriate broadcasting mechanisms that fit the circumstances.

**GUIDELINES**

The seven guidelines that support the mission and vision are:

- Relevant study programs
- Prestigious faculty
- Research and artistic creation
- Students of Excellence
- Outreach
- Administrative efficiency
- Modern Infrastructure

**PRINCIPLES**

The following principles refer to the orientation with which collective objectives, actions, and goals must be proposed at the university.

- **QUALITY PHILOSOPHY**

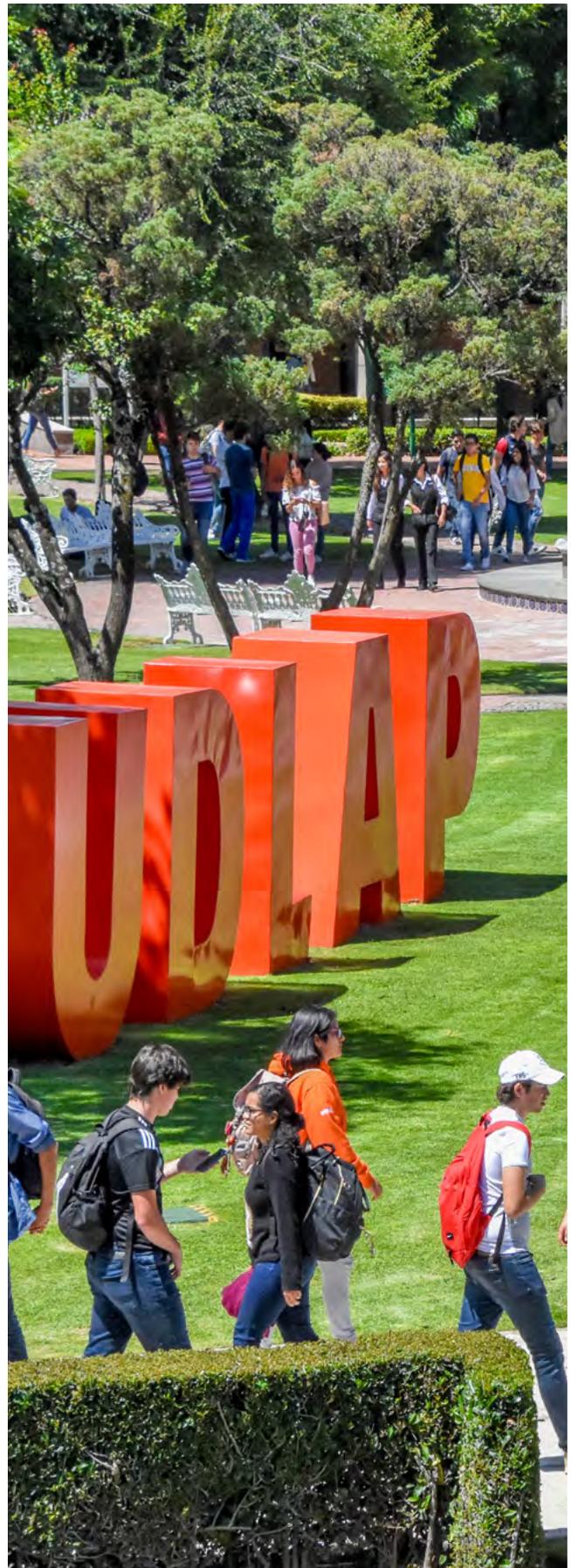
Meeting the objectives considers a quality philosophy whose execution is characterized by warmth in service, promoting a continuous improvement mindset to reach the established goals of each strategic guideline.

- **INTERNATIONALIZATION**

The focus of the objectives contemplates actions with a global perspective to promote a multicultural environment and to strengthen the institution's prestige beyond its borders.

- **SOCIAL RESPONSIBILITY**

The objectives are defined based on acting ethically, on a philosophy of social commitment, and on responsibility the environment.



# OUR CAMPUS

Our campus is known as one of the most diverse and green in the area. To date, it has 80 hectares, of which 50.61 are green spaces. Not only that, but inside UDLAP there is room to develop activities safely.

Since its foundation, *Universidad de las Américas Puebla* has been a meeting place of notable personalities of the academic, artistic, political, cultural, and business world, who have found in UDLAP the ideal place to teach, create, study, learn, and share.

*Universidad de las Américas Puebla* has great international prestige in different areas: science, engineering, scenic and fine arts, humanities, business and economics, among others.

At UDLAP, students and professors join the constant changing times. The true way to experience it is visiting our campus, walking through its gardens, talking to students and professors, visiting the classrooms, laboratories, residential colleges, sports facilities, libraries, computer rooms, and cafeterias.

## **BUILDINGS**

Our campus is known as one of the most diverse and green in the area. Currently it has 80 hectares, of which 50.61 are green areas.

Not only that, inside UDLAP there are spaces where you can develop your activities without setbacks. Among these you will find:



### SCENIC ARTS ROOM

This place to express yourself includes audio and lighting, a seating area, stage, dressing rooms, storage, ticket office, and workshop.

### LIBRARY

For your days and nights of study, our library is not only comfortable, but melds a traditional library blueprint with information services, both onsite and online. It includes four multimedia rooms for collaborative work and three bibliographical instruction rooms with computer equipment. It also has individual and group study rooms.

### LABORATORIES

As part of your academic formation, we have science, health science, mechanical and industrial engineering, electronic engineering, telecommunications labs, as well as a water treatment plant. We also have a language learning complex, oral arguments hall, financial simulation room, projection area, marketing and retail intelligence lab, qualitative research and innovation labs, psychology lab, Gesell chamber, mobile apps lab, photography labs, television set with dressing rooms, dance and music rooms, and a 3D printer. Finally, we have a hospitality lab, better known as the San Andrés Hostel, open to the UDLAP community and managed and staffed by students from the corresponding majors.

### AUDITORIUM

The most used area for congresses, plays, and other events. It is located in the center of the campus and is the most popular meeting area. It will be difficult for you not to find an activity inside.

### COMPUTER ROOMS

UDLAP has three large computer rooms with more than 866 latest-generation equipment at your disposal, with specialized software for your courses. Use them when you need them, 24 hours a day, 7 days a week. You can find them at

- Business and Economics, Room NE-137
- Arts and Humanities, Room HU-224
- Science, Room CN-106

### MEDICAL SERVICES

To guarantee your well-being and physical health, we have a center for clinical analysis and medical services that provides free service to community members each time they need it. UDLAP has an integral rehabilitation center that offers ser-

vices after orthopedic and articular surgery, sports medicine, rehabilitation, physical therapy, nutrition, and physical preparation with the latest technological and scientific knowledge, always looking for innovation.

### STUDENT CENTER

This is the preferred meeting place for the UDLAP community. It has services and activities that will keep you busy during your free time.

Here you can find from food to office products, projection rooms and student organization offices.

### SPORTS FACILITIES

Concerned both with your academic and physical development, we have optimal sports facilities that you can access daily for your physical well-being.

#### You will find

- Pool
- Baseball field
- Indoor soccer
- Basketball courts
- Tennis courts
- Integral Rehabilitation Center
- Basketball court at Moe Williams Gymnasium
- Weights room
- Running track
- American football field, *Templo del Dolor*
- Soccer fields

### RESIDENTIAL COLLEGES

Equipped with dorms, projection rooms, auditoriums, cafeterias, and more, we have designed these spaces so you can live comfortably on campus. You can choose from our four colleges, Cain-Murray, Ray Lindley, Ignacio Bernal, and José Gaos, located throughout campus.

### GREEN AREAS AND RECREATION

Ideal to relax, socialize with friends, or do outdoor activities, which make them some of the favorite areas of our UDLAP community.

Among them you will find a lake, bonfire and meditation gardens, couple garden, the central fountain, as well as the Flag Plaza. All of these are meeting and open areas for the university community.



# 2020 STRATEGIC PLAN

Universidad de las Américas Puebla's strategic plan for the 2013-2023 period is derived from the institution's vision, incorporating our current mission. This mission gives rise to strategic guidelines, whose objectives and goals are focused

on key principles, thus promoting a conduct based on UDLAP's values. In 2019 five priority objectives were defined, complementing the university's strategic plan.

<b>VISION</b>	To be leading university in Latin America in study programs and in scientific, cultural, sports, and public policy programs that meet the challenges presented by globalization.		VALUES FREEDOM WITH RESPONSABILITY TOLERANCE AND NON-DISCRIMINATION HONESTY AND INTEGRITY SOLIDARITY TRANSPARENCY
<b>MISSION</b>	To participate in the development of society by educating critical, creative, and innovative professionals, who are trained at the highest technical level and who create pertinent research. All of this with a social conscience that demands an equitable distribution of the benefits of globalization		
<b>STRATEGIC GUIDELINES</b>	Relevant study programs Prestigious faculty Excellence students Research and artistic creations Administrative efficiency	<b>OBJECTIVES 2013-2023</b> Financial stability Academic prestige Institutional prestige Linkage with society and companies Organizational capital	
<b>PRINCIPLES</b>	QUALITY PHILOSOPHY INTERNATIONALIZATION SOCIAL RESPONSIBILITY		

## STRATEGIC GUIDELINES

UDLAP's mission is based on seven strategic guidelines defined as follows:

### I. RELEVANT STUDY PROGRAMS

Quality undergraduate and graduate study programs, both on site and online, that meet the needs and expectations of

public and private organizations as well as society and are the basis for the professional development of our graduates.

### II. PRESTIGIOUS FACULTY

Professors with national and international recognition derived from their academic formation, professional development, teaching experience, research, and/or artistic creation.

### III. RESEARCH AND ARTISTIC CREATION

The development of research and artistic creation projects has as an objective to create boundary-pushing knowledge that derive in the formation of top-level human resources, and whose results and products are presented, shared, and published in different forums.

### IV. STUDENTS OF EXCELLENCE

Students characterized by their knowledge, learning experience, competencies, and social responsibility, which prepare them integrally to develop in the professional, personal, cultural, and sports areas. They live in a plural environment during their formative trajectory at the university and meet the standards of quality and excellence required by public and private organizations and society.

### V. OUTREACH

Creation and establishment of national and international networks with alumni, public and private organizations, and society to promote collaboration that yields mutual benefits.

### VI. ADMINISTRATIVE EFFICIENCY

Optimal management of human, financial, and material resources that allow for the financial strength and stability necessary to meet the objectives and continuous growth of the institution.

### VII. MODERN INFRASTRUCTURE

Modern and sustainable facilities, with the necessary equipment and technological tools for optimal teaching, research, cultural, sports, outreach, and administrative activities.

## PRINCIPLES

The following principles refer to the orientation with which collective objectives, actions, and goals must be proposed at the university.

#### A. QUALITY PHILOSOPHY

Meeting the objectives considers a quality philosophy whose execution is characterized by warmth in service, promoting a continuous improvement mindset to reach the established goals of each strategic guideline.

#### B. INTERNATIONALIZATION

The focus of the objectives contemplates actions with a global perspective to promote a multicultural environment and to strengthen the institution's prestige beyond its borders.

#### C. SOCIAL RESPONSIBILITY

The objectives are defined based on acting ethically, on a philosophy of social commitment, and on responsibility towards the environment.



**VALUES**

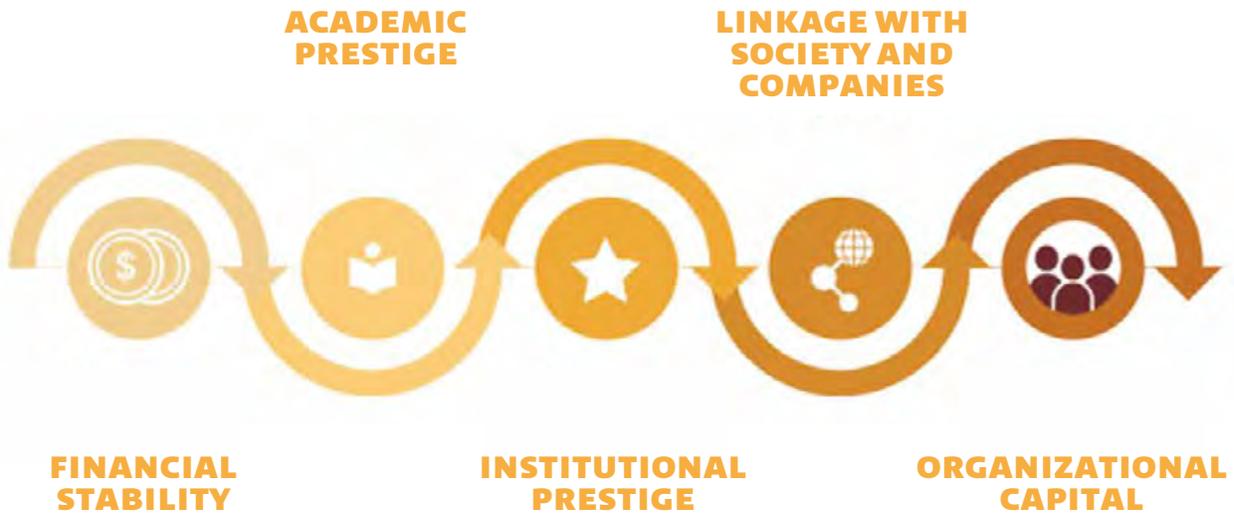
They determine how UDLAP community members behave. They are mentioned in the statutes and defined in the Code of Ethics

**A. FREEDOM WITH RESPONSIBILITY**

Members of the university community will act with independence of criteria and creativity, exercising their freedom of thought, research, and expression with responsibility. The university community will promote freedom of research and teaching as pillars to create knowledge.

**B. TOLERANCE AND NON-DISCRIMINATION**

Real knowledge is created and shared only in an environment of mutual respect for others, for their opinions and diversity. Therefore, the university community will seek plurality in a respectful environment, strictly rejecting any type of discrimination motivated by ethnic or national origin, gender, age, disability, social or economic condition, health condition, religion, opinion, preference, marital status or any other that threatens human dignity.



# ACCREDITATIONS

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*Universidad de las Américas Puebla's* faculty teaches study programs with academic quality. The faculty consists of 300 full-time professors, 95% of whom have graduate degrees; 4 professors out of 10 are members of the National Researchers System.

UDLAP focuses its efforts on providing high-level educational services, through the integral formation of its students in a multicultural environment based on respect and international understanding.

All of the study programs have Official Validity Recognition - *RVOEs (Reconocimiento de Validez Oficial)* from the Secretary of Public Education - and are recognized by different universities in Latin America, Europe, and the educational system of the United States.

Our students can follow part of their study programs abroad to widen their horizons or can do professional practices in other countries, thus widening their horizons and varying their training and professional experience.

Additionally, we have the *Acreditación de Licenciaturas* by *COPAES-(Consejo para la Acreditación de la Educación Superior, A.C.)*, before the *CIEES-(Comités Interinstitucionales para la Evaluación de la Educación Superior, A.C.)*, as well as other internationally renowned accreditation agencies.



## SACSCOC

*Fundación Universidad de las Américas, Puebla* is accredited by the Southern Association of Colleges and Schools - Commission on Colleges to grant *licenciatura*, master, and doctorate degrees. Contact the Commission on Colleges via mail (1866 Southern Lane, Decatur, Georgia 30033-4097, EUA) or by telephone (+1 404 679 4500) to request more information about *Fundación Universidad de las Américas, Puebla's* accreditation.



## FIMPES

*Fundación Universidad de las Américas, Puebla* has been fully accredited for its campus on *Ex Hacienda Santa Catarina Mártir*, 72820 San Andrés Cholula, Puebla before the system of entry and permanence of FIMPES, through its Institutional Development Office.

## Certification by the Council for Higher Education Accreditations (*Consejo para la Acreditación de la Educación Superior - COPAES*)

ACCREDITATION AGENCY	ACCREDITED PROGRAMS
 <p><i>Consejo de Acreditación en la Enseñanza de la Contaduría y Administración (CACECA)</i></p>	<p>Business Management Marketing International Business Financial Strategies and Public Accounting</p>
 <p><i>Acreditadora Nacional de Programas de Arquitectura y Disciplinas de Espacio Habitable A. C. (ANPADEH)</i></p>	<p>Architecture Interior Architecture</p>

ACCREDITATION AGENCY		ACCREDITED PROGRAMS
 <p><i>Consejo de Acreditación de la Enseñanza de la Ingeniería, A.C. (CACEI)</i></p>	<p>Food Engineering  Industrial Engineering  Electrical Engineering  Chemical Engineering  Mechanical Engineering  Mechatronic Engineering  Civil Engineering  Computer Systems Engineering  Environmental Engineering  Biomedical Engineering  Logistics Engineering</p>	
 <p><i>Consejo Nacional para la Enseñanza e Investigación en Psicología, A. C. (CNEIP)</i></p>	<p>Clinical Psychology  Organizational Psychology</p>	
 <p><i>Consejo Nacional de la Enseñanza y del Ejercicio Profesional de las Ciencias Químicas A. C. (CONAECQ)</i></p>	<p>Clinical Biochemistry  Nanotechnology And Molecular Engineering</p>	
 <p><i>Consejo de Acreditación de la Comunicación y Ciencias Sociales A. C. (CONAC)</i></p>	<p>Communication And Image  Communications And Media Production</p>	
 <p><i>Asociación para la Acreditación y Certificación en Ciencias Sociales (ACCECISO)</i></p>	<p>Cultural Anthropology  Political Science  Educational Innovation  International Relations  Multicultural Relations</p>	
 <p><i>Consejo Nacional para la Calidad de la Educación Turística (CONAET)</i></p>	<p>Hotel And Restaurant Management  Culinary Arts</p>	
 <p><i>Comité de Acreditación y Certificación de la Licenciatura en Biología, A. C. (CACEB)</i></p>	<p>Biology</p>	

ACCREDITATION AGENCY		ACCREDITED PROGRAMS
	<i>Consejo Mexicano para la Acreditación de la Educación Farmacéutica, A. C. (COMAEF)</i>	Pharmaceutical Science
	<i>Consejo Mexicano para la Acreditación de Programas de Diseño (COMAPROD)</i>	Digital Animation Visual Information Design
	<i>Consejo para la Acreditación de la Enseñanza del Derecho (CONAED)</i>	Law
	<i>Consejo para la Acreditación de la Educación Superior de las Artes (CAESA)</i>	Dance Music Theater Fine Arts
	<i>Consejo para la Acreditación de Programas Educativos en Humanidades (COAPEHUM)</i>	Art History and Curatorship Languages Literature
	<i>Consejo Nacional de Acreditación de la Ciencia Económica, A. C. (CONACE)</i>	Banking and Investment Economics
	<i>Consejo de Acreditación de Programas Educativos en Física, A. C. (CAPEF)</i>	Physics
	<i>Consejo Mexicano para la Acreditación de la Educación Médica, A. C. (COMAEM)</i>	Medical Surgeon
	<i>Consejo Nacional para la Calidad de los Programas Educativos en Nutriología A. C. (CONCAPREN)</i>	Nutrition Science

## RECOGNITION OF GOOD QUALITY PROGRAMS - *COMITÉS INTERINSTITUCIONALES PARA EVALUACIÓN DE LA EDUCACIÓN SUPERIOR, A.C. (CIEES)*



### CIEES

*Comités Interinstitucionales para Evaluación de la Educación Superior, A. C. (CIEES)*

## COMITÉS INTERINSTITUCIONALES PARA EVALUACIÓN DE LA EDUCACIÓN SUPERIOR, A. C. (CIEES)

### EVALUATED PROGRAMS

- Licenciatura in Actuarial Science
- Licenciatura in Nursing

### ACCREDITED PROGRAMS

- Master in Construction Project Management
- Master in Information Design

## INTERNATIONAL ACCREDITATIONS

ACCREDITATION AGENCY	ACCREDITED PROGRAMS
 <p>Accredited by The Engineering Accreditation Commission of ABET.</p>	<p>Food Engineering                      Chemical Engineering                      Civil Engineering                      Industrial Engineering                      Mechanical Engineering                      Mechatronic Engineering</p>

ACCREDITATION AGENCY	ACCREDITED PROGRAMS
 <p>Institute Food Technology (IFT)</p>	<p>Food Engineering</p>
 <p>Honor's Program accredited by The Royal Society of Biology. RSB</p>	<p>Biology</p>
 <p>Accredited by the Royal Society of Chemistry.</p>	<p>Nanotechnology and Molecular Engineering</p>

## GRADUATE PROGRAMS ACCREDITED BY THE NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY (CONACYT)



### CONACYT

Consejo Nacional de Ciencia y Tecnología. CONACYT

### ACCREDITED PROGRAMS

- Doctorate in Creation and Culture Theories
- Doctorate in Molecular Biomedicine
- Doctorate in Food Science
- Doctorate in Water Science
- Doctorate in Intelligent Systems

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Mercado



UDLAP



# FACULTY

## SCHOOL OF ARTS AND HUMANITIES

Name	Position
Martha Laura Ramírez Dorantes	Dean of the School of Arts and Humanities
Anne Kristiina Kurjenoja Lounassaari	Academic Director of Architecture
Jesus Mario Lozano Alamilla	Academic Director of Arts
Brita Banitz	Academic Director of Languages
Martín Sánchez Camargo	Academic Director of Letters, Humanities and Art History
Víctor Alejandro Brizuela García	Academic Director of Design

## SCHOOL OF SCIENCE

Name	Position
José Daniel Lozada Ramírez	Dean of the School of Science
Mauricio Rodríguez Abreu	Academic Director of Actuarial Science, Physics and Mathematics
Eugenio Sánchez Arreola	Academic Director of Chemical Biological Science
Roberto Carlos Mares Morales	Academic Director of Health Science

## SCHOOL OF SOCIAL SCIENCES

Name	Position
Raphael Steger Cataño	Dean of the School of Social Sciences
Laura Elena Romero López	Academic Director of Anthropology
Juan Antonio Le Clercq Ortega	Academic Director of International Relations and Political Science
Valeria Leal Ramírez	Academic Director of Communication Science
Marcela Corro Priego	Academic Director of Law
Claudia María Ramírez Culebro	Academic Director of Education Science
Juan Antonio González Puente	Academic Director of Psychology

## SCHOOL OF ENGINEERING

Name	Position
René Alejandro Lara Díaz	Dean of the School of Engineering
Rafael Carrera Espinoza	Academic Director of Industrial and Mechanical Engineering
Benito Corona Vásquez	Academic Director of Civil and Environmental Engineering
Gerardo Ayala San Martín	Academic Director of Computer Science, Electronic and Mechatronic Engineering
María Teresa Jiménez Munguía	Academic Director of Chemical and Food Engineering

## SCHOOL OF BUSINESS AND ECONOMICS

Name	Position
Sergio Picazo Vela	Dean of the School of Business and Economics
Luis Alberto Barroso Moreno	Academic Director of Business Graduate Programs
Juana Cecilia Trujillo Reyes	Academic Director of Business Administration
Erika Galindo Bello	Academic Director of Marketing
Manuel Francisco Suárez Barraza	Academic Director of International Business
Nicolás Gutiérrez Garza	Academic Director of Economics
Felipe de Jesús Bello Gómez	Academic Director of Banking and Investment
Guillermo Einar Moreno Quezada	Academic Director of Finance and Accounting
Ma. del Carmen Milagros Morfín Herrera	Academic Director of Tourism

# INTEGRAL FORMATION

## ART AND CULTURE

We encourage all types of culture! From theater, dance, and painting to singing, music, and sculpture, UDLAP offers its community and the general public numerous performances and art shows throughout the year, always looking to emphasize different cultures and customs that coexist on campus.

## SPORTS

Our sports students are an example of discipline, attitude, strength, and hard work. Our university's six sports representative teams are always in the top places in the competitions in which they participate, proving the significance of being an UDLAP Azteca.

## STUDENT LIFE

The university is more than a place to attend classes. The experience of learning to coexist with different ways of thinking, and participation in integrating and socializing activities, contributes to the comprehensive development of the university community. UDLAP offers a great variety of activities characterized by their thematic diversity, such as academic and cultural trips, visits to local businesses, bike tours, movie club, and student organizations.

## SOCIAL COMMITMENT

It is in coexisting that the university's knowledge is built.

Therefore, at UDLAP daily life is one of constant learning. We want our students to establish a citizen's ethic: humanistic and tolerant, of leadership and success derived from contributing to offer equal opportunities to those around them.

## INTERNATIONAL EXPERIENCE

UDLAP offers the opportunity to live an international experience through diverse programs: academic exchanges, dual programs, language summers, and professional practices abroad.

## OUTREACH TO COMPANIES (PROFESSIONAL PRACTICES)

The Department of Professional Practices formalizes and supervises the relationship between UDLAP students and the organizations that offer them professional practices projects in Mexico. Its main functions are to

- Establish collaboration agreements.
- Promote professional practice projects with the university community.
- Manage and supervise the student-organization relationship.
- Mediate and solve conflicts.

# ADMISSIONS

---

## ADMISSION PROCESS

### 1.- CREATE YOUR PROFILE

[Create a unique user account](#) and start your admission process.

### 2.- TAKE YOUR ADMISSION EXAM

[Know](#) the admissions exam dates given at campus and [register](#) for the date you have selected. You can also consult the dates when we will be at your city and schedule your appointment. Check the guide to take the admissions exam.

### 3.- FIRST DELIVERY OF ADMISSION DOCUMENTS

Once you have approved your exam, you can continue the procedure and obtain a student number. For this you must fill in the admission application and hand in a copy of your birth certificate or CURP, as well as an original transcript with cumulative GPA from your high school or equivalent.

### LICENCIATURAS WITH ADDITIONAL ADMISSION REQUIREMENTS

Have in mind that if you want to follow the study programs in International Business Administration, Dance, Medical Surgeon or Nursing, there are additional requirements that you must meet.

Consult the requirements at: <https://udlap.mx/eligeudlap/requisitos-adicionales.aspx>

### 4.- MAKE YOUR FIRST PAYMENT AND YOU WILL RECEIVE YOUR CLASS SCHEDULE \*

Pay for 6 units (in applicable cases).

\*You will receive the class schedule once the period of early registration begins.

## EQUIVALENCES AND STUDY REVALIDATIONS

Equivalence is the administrative act of the educational authorities, or a ruling from an authorized institution, that declares that studies done within the National Education System and the courses of the university's study program are comparable.

Revalidation is the administrative act of the educational authorities, or a ruling from an authorized institution, that gives official validity to those studies done abroad, as long as they are comparable to studies from the National Education System and correspond to courses of the university's study program.

A comparison study is made to determine the courses that will be accredited in the study program through equivalence or revalidation. This study has an additional cost for the student, which is published in the university's website.

You may have credit for passed courses as indicated in the institution's document.

A student has a maximum 80 days from the beginning of their first period at the university to deliver the required documentation.

For *licenciatura* equivalencies (national institutions), the student must deliver the following documents

- a. *Licenciatura* study program from the previous university, duly stamped.
- b. Syllabus of each of the courses to be considered for equivalence, duly stamped.
- c. Hard copy of the transcript from the previous university.

For master's equivalencies (national institutions), the student will deliver the following documents

- a. Graduate study program of the previous university, duly stamped.

- b. Syllabus of each of the courses to be considered for equivalence, duly stamped.
- c. Hard copy of the transcript from the previous university.
- d. Notarized degree certificate.
- e. *Licenciatura diploma*.

For *licenciatura* revalidations (foreign institutions), the student will deliver the following documents

- a. Certified transcript from the previous university, either physical or electronic, duly stamped.
- b. Study program from the previous university, duly stamped.
- c. Syllabus of each of the courses to be considered for revalidation, duly stamped.

All documents in a language other than Spanish must be accompanied by their simple translation.

For master's revalidations (foreign institutions), the student will deliver the following documentation

- a. Certified transcript from the previous university, duly stamped.
- b. Study program from the previous university, duly stamped.
- c. Syllabus of each of the courses to be considered for revalidation, duly stamped.
- d. Notarized degree certificate.
- e. *Licenciatura* transcript.

All documents in a language other than Spanish must be accompanied by their simple translation.

# SCHOOL CALENDAR

## YOU CAN CONSULT OUR SCHOOL CALENDAR HERE:

[HTTPS://WWW.UDLAP.MX/WEB/COMUNIDAD/CALENDARIO-ESCOLAR.ASPX?IDIOMA=2](https://www.udlap.mx/web/comunidad/CALENDARIO-ESCOLAR.ASPX?IDIOMA=2)

### SCHOOL SERVICES

The Department of School Services is the area that served students in their admission process, during their *licenciatura* or graduate studies, and until their graduation. This area assists in different procedures and academic movements through their service modules. Business hours: Monday to Friday from 8:30 to 17:00 h.

For extended hours, request an appointment 24 hours before at [serviciosescolares.posgrado@udlap.mx](mailto:serviciosescolares.posgrado@udlap.mx)

For more information: [www.udlap.mx/serviciosescolares/default.aspx?idioma=2](http://www.udlap.mx/serviciosescolares/default.aspx?idioma=2)

### UNIVERSITY SCHOLARSHIPS

Economic aid is given mainly to students who request it, after evaluating their academic, sports or artistic performance,

and granted as scholarships that do not have to be paid back to the university (they are not loans).

It is an indispensable requirement to submit the scholarship application on the dates established in the call and enroll in the periods of “early enrollment” according to the academic period in which you will enter (January or August). You must meet the requirements to obtain a scholarship, otherwise it will not be granted.

The main commitment requested to students is to maintain their academic performance quality.

It is important to know and meet the general and specific guidelines, as well as the scope, benefits, and obligations of the scholarship you choose.

## TYPES OF SCHOLARSHIPS



### ACADEMIC

- Average: 8.5
- Admissions Exam Score: 1200
- Pay of \$1,230 for socio-economic study. (cost subject to change without notice, non-refundable), deposit or wire transfer: Banorte (Account number: 0650071838 / Key: 072 650 0065 00718384) Bancomer (Account number: 0443569470 / Key: 012 650 0044 35694700)



### AGREEMENT HIGH SCHOOLS

- Benefit for students who are alumni from high schools with current agreement with UDLAP.

[www.udlap.mx/eligeudlap/preparatorias-convenio.aspx](http://www.udlap.mx/eligeudlap/preparatorias-convenio.aspx)



### STRATEGIC PARTNERS AGREEMENT

- Associations
- Chambers
- Companies
- Financial Institutions
- Government



### SPORTS

- Specific process to become a part of UDLAP's Sports Representative Teams.
- Information: Building GB, Office 207 222 229 23 78 / 222 229 20 00 ext. 6533 / 2381 [reclutamiento.aztecas@udlap.mx](mailto:reclutamiento.aztecas@udlap.mx)



### ARTISTIC

- Specific call (enrollment in fall) to be a part of UDLAP's Cultural Representative Teams.
- Information: Building CI, Office 212 222 229 31 55 [equipos.culturales@udlap.mx](mailto:equipos.culturales@udlap.mx)



### CHILDREN OF UDLAP ALUMNI

- Direct Benefit if you meet the established requirements.

### IMPORTANT ASPECTS.

University scholarships are only granted to new students. University scholarships are not cumulative for any reason. Submitting a scholarship application does not guarantee that it will be granted, as it is subject to assessment by the corresponding department at UDLAP.

Late applications, incomplete documentation, or documents that do not meet the requirements are not accepted.

If you receive a university scholarship, it is indispensable to comply with what is stated in the regulations for university scholarships.

More information at: [www.udlap.mx/becas/default.aspx?idioma=2](http://www.udlap.mx/becas/default.aspx?idioma=2)

## GRADUATION AND DIPLOMA

### GRADUATION

Procedure

- Go to [aplicaciones.udlap.mx/Graduacionestudiante/](http://aplicaciones.udlap.mx/Graduacionestudiante/) on the dates published in the current school calendar.
- Upload the proof of payment of the graduation fee, which must be the current one.
- Deliver physical photos for the transcript and for the exam or exemption act.
- Upload a digital color picture at [aplicaciones.udlap.mx/Graduacionestudiante/](http://aplicaciones.udlap.mx/Graduacionestudiante/) for the electronic version of your diploma.
- Complete your Social Service (only for *Licenciatura*)
- Have no outstanding debts with the university (tuition, UDLAP Lottery, library, labs, scholarship service hours, etc.)

### DIPLOMA

- Once you have graduated, UDLAP will issue and send the XML files with the electronic diplomas to the education authorities who will authenticate and record them to then send them to the interested parties.
- The professional license must be requested in person, and can be carried out after the student has their electronic diploma.

## COSTS

### TUITION

For students to enroll they must make an advanced tuition payment.

- 6 units at the current cost for licenciatura.
- 4 units at the current cost for graduate programs.

The tuition fee is determined by multiplying the number of enrolled academic units by the current cost per unit. Every course has a defined number of units.

Information regarding payments and tuition is found at <https://www.udlap.mx/pagosycolegiaturas/?idioma=2>

### REFUNDS

If you have a credit balance, you can request a refund as long as that balance is from excess payments.

To process your refund, you must go to the Unicaja in the Treasury Department, located in building 1, office 109, to deliver the necessary documentation on the dates published at [www.udlap.mx/pagosycolegiaturas/reembolsos.aspx](http://www.udlap.mx/pagosycolegiaturas/reembolsos.aspx). The procedure is as follows

#### 1. Refund application requirements

- Letter to the Treasury Department specifying the reason a credit balance is owed to you.
- Complete [Refund Application](#) (only the shaded sections, also available at the Unicaja).
- Copy of official identification (INE or Passport), presenting the original for comparison. In case the refund is over 20,000 pesos, you must present a letter of authorization from your parent or tutor registered at School Services, copy of their official identification, and phone number.
- For refunds greater than 100,000 pesos, you must present a duly documented letter of provenance.
- When students cannot do the previous in person, their proxy must have a simple power of attorney and show a copy of the official ID of the student they represent and their own ID copy.

2. Delivery of Refund

- Once your refund has been authorized and 15 working days at most have elapsed, you may go to the Payment Office, located in building 1, office 109, to receive your refund. The business hours are from 8:00 to 13:00 h and from 15:00 a 16:00 h.
- If your refund is less than the equivalent of one current unit of *licenciatura*, it will be in cash. Please bring your official ID.
- If the amount is higher than what is mentioned above, you will receive a check payable to you (nominative check), which means that you will have to deposit it in a bank account under your name.
- If you cannot pick up your refund in person, you may request that it be deposited to your account, attaching a copy of your bank statement.
- If the credit balance is from the application of study units (*unidades de estudio* - UDES) or units for future study (*unidades de estudio a futuro* - UFES), the refund will have a 10% penalty for administrative charge.
- Refunds for scholarships, education credits, or lottery incentives are not applicable.

**WITHDRAWING FROM UDLAP**

In case of temporary or definite withdrawal from UDLAP, the student must cover the total cost of the tuition for the enrolled period, unless the withdrawal is within the periods mentioned below. The withdrawal process must be done at School Services.

The count of days for the waiver percentage begins on the first official day of classes of the academic term and includes the day when School Services begins the withdrawal procedure.

**SEMESTER TERM**

From the 1st to the 5th day of classes	100% waiver
From the 6th to the 10th day of classes	70% waiver
From the 11th to the 14th day of classes	40% waiver
From the 15th day until the end of the term	0% waiver

**TRIMESTER OR SUMMER TERM**

For the 1st and 2nd day of classes	100% waiver
From the 3rd to the 5th day of classes	70% waiver
From the 6th to the 7th day of classes	40% waiver
From the 8th day until the end of the term	0% waiver

\* Applicable only to tuition.  
 \* New students must adhere to current guidelines.

## REGULATIONS

At *Fundación Universidad de las Américas, Puebla* we have policies, regulations, and procedures that every member of the UDLAP community must observe in order to create an environment of peaceful coexistence, respect, and collaboration to benefit their personal and professional growth, and in congruence with the institutional mission.

Students of *Fundación Universidad de las Américas, Puebla* have the obligation of acting with responsibility to achieve an integral formation and academic excellence.

Student regulations at <https://www.udlap.mx/servicioscolares/normatividad.aspx?idioma=2>

## ALUMNI COMMUNITY

The objective of the Alumni Department is to maintain contact with the UDLAP's biggest community, which is the 30,000 alumni (*exaudlap*). They are fundamental, since they represent the university in the work force. Likewise, they support in creating new professional and social spaces that contribute to *Universidad de las Américas Puebla's* positioning.

The office of Alumni Outreach works in conjunction with other UDLAP areas to receive suggestions from alumni and the general public. We are focused on providing a service to all who graduated from *licenciatura* and graduate programs from *Universidad de las Américas Puebla*.

We want to strengthen, consolidate, and stimulate the relationship with UDLAP graduates, while we promote their integration and sense of belonging, by disclosing their personal and professional development.

We promote the benefits of being an UDLAP alumni, maintaining and consolidating the alumni-institution link. We update information about where they work and their activities, inviting them to participate in events, asking them to publish articles in our research space (*Contexto*), or publishing stories about their legacy in *Visión ExaUDLAP*.

## VISIÓN EXAUDLAP MAGAZINE

The prestige of universities comes from its alumni. They are who, through their actions, reflect the results of work and effort. As *Universidad de las Américas* alumni, they acquire the commitment to strengthen what has distinguished them for generation: alumni with critical thinking who can face challenges and compete in the global environment. Keeping graduates close to their alma mater and building a community requires effort from all of us. Being an *exaudlap* means being an active part of the university community, having our alumni close strengthens us and contributes to consolidating our university and consequently transforming our country.

UDLAP will continue working to make our alma mater a center of integral growth, shaping the future of young people, and training individuals who benefit their immediate social context.

We reiterate our interest in keeping you close to your alma mater and invite you to participate in the different outreach areas available to you. We thank you for your enthusiastic participation to make this magazine possible and for allowing us to share the accomplishments, success, and challenges of the graduate community.



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# ACADEMIC PROGRAMS

## SCHOOL OF ARTS AND HUMANITIES

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# DIGITAL ANIMATION

## LAP1012 ANALYSIS AND REPRESENTATION

Differentiate space representations, using body-language applications in two-dimensional planes to identify fundamental drawing elements.

## LIV1012 ELEMENTS OF VISUAL MESSAGES

Identify the elements of the visual alphabet by applying tools and design techniques to configure visual messages considering the syntax of the image.

## LLI1022 FUNDAMENTALS OF LITERARY WRITING

Identify the literary discourse theoretical concepts analyzing contemporary literature to understand the meaning of literary writing.

## LIV1022 FUNDAMENTALS OF DIGITAL IMAGES

Play simple vector images or bitmaps using specialized digital imaging software that can be used in both screen and print design projects.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## LAR1052 ANALYSIS AND VISUALIZATION

Relate the elements of design problems through diagrams, sketches and three-dimensional models, to come up with conclusions and creative proposals.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LIV1052 EDITING DIGITAL IMAGES

Design digital images to relate a visual message to a specific

audience using specialized software to produce images and thus effectively define the appropriate technical parameters of their medium.

## LIV1072 PHOTOGRAPHY

Identify the components of a photo by using techniques and equipment to create images.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LPM1022 LANGUAGE OF CINEMA I

Identify the major milestones in the first sixty years of film history through a written analysis of a film in accordance with the evolution and use of narrative and cinematic language techniques until the late 1950s to understand the most relevant authors and their contributions to the cinematographic language.

## LAR1032 SPACE MODELS

Identify architectural concepts by creating and constructing models and mockups to express your own ideas about three-dimensional architectural space.

## LAP2022 DRAWING AND FORM

Define your own graphic language, through direct observation and drawings of proportions and symmetry of natural and anthropomorphic models, to compare different possibilities when representing figures.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LND2012 DIGITAL ILLUSTRATION

Identify digital illustration techniques using tablets and direct capture screens, to create illustrations to be applied in a design or artistic project.

## LEX0132 FOREIGN LANGUAGE III \*

Express known and/or new information in an oral and written

manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LIV2032 VISUAL SEMIOTICS AND RHETORIC**

Identify the main contributions of semiotics and rhetoric to study visual messages, by analyzing relevant theories and examples in order to have a basis for visual information design decisions.

#### **LND2022 ANIMATION TECHNIQUES**

Identify the basic concepts of animation and traditional production processes, applying different techniques to develop moving images.

#### **LND2042 2D DIGITAL ANIMATION**

Apply different 2D digital animation techniques, as well as an adequate workflow and specialized software to produce two dimension animation projects.

#### **LND2032 DIGITAL MODELING AND TEXTURE**

Identify the fundamental principles of modeling and texturing of 3D objects, using different techniques and applying them to a three-dimensional digital production.

#### **LLI2042 LITERARY MODELS - NARRATIVE**

Identify structural and thematic distinctions between the epic, the novel and the short story by comparing the various quantitative, qualitative and narrative enunciation elements that make up a story to analyze paradigmatic works ranging from the epic to stories to the most recent novels of the western world in their printed and audiovisual representations.

#### **LND2052 PRE-PRODUCTION AND PRE-VISUALIZATION**

Create a digital animation using narrative preview and development techniques, such as a storyboard, to express audiovisual language.

#### **LND3052 ANIMATION ACTING**

Identify the basic elements of Stanislavski's performance system through basic acting exercises to apply them in character animation.

#### **LND3032 ADVANCED 2D DIGITAL ANIMATION**

Identify the advanced 2D digital animation tools to create different characters and scenarios through the use of specialized software.

#### **LND3042 ANIMATION SOUND DESIGN**

Create soundtracks using different techniques and record-

ing tools to integrate them into an animation project and identify the synchronization process between image and sound.

#### **LND3012 ADVANCED DIGITAL MODELING**

Identify advanced modeling techniques, using surfaces manipulation and texturization processes, applying them to a three-dimensional production.

#### **LND3022 PROFESSIONAL PRACTICES 1**

Identify appropriate and competent digital animation solutions within a company or organization, to meet the customer's communication objectives during your internship under the tutelage of a mentor.

#### **LND3082 3D DIGITAL ANIMATION**

Produce digital animation in 3D by practicing principles, techniques and workflows to design an animated short film.

#### **LND3072 CHARACTER MOTION CAPTURE AND ANIMATION**

Identify the motion capture workflow using cameras and special equipment, as well as effective direction of motion capture sessions to create characters that are part of a 3D production.

#### **LND3102 PROJECT MANAGEMENT AND CREATIVE TEAMS**

Identify the process management of creative projects and teams, implementing research tools, analysis, diagnosis, planning, realization and measurement of results, to create a feasible design proposal.

#### **LND3062 DIGITAL ILLUMINATION AND COMPOSITION**

Identify digital animation lighting, rendering and composition processes defining and applying lighting on an object or scene, as well as global lighting techniques, in order to create specific effects.

#### **LAI3082 DIGITAL MODELING AND PRODUCTION**

Develop digital models for innovative interior space product and object prototypes, using CAD-CAM-CNC (Computer Aided Design - Computer Aided Manufacturing - Computer Numerical Control) to create them digitally.

#### **LND3092 SELECT TOPICS 1**

Analyze issues related to the production of 2D animations by applying tools and techniques to develop interactive games, training videos, animated infographics and tutorials.

**LND4032 ADVANCED 3D DIGITAL ANIMATION**

Identify advanced 3D digital animation techniques, using specialized software to produce animated characters and their 3D staging.

**LND4052 EXPERIMENTAL ANIMATION**

Develop different animation techniques and styles by creating an animated short with a personal visual and artistic proposal to describe a story with a suitable visual narrative.

**LAP4052 ART AND DIGITAL TECHNOLOGY**

Investigate different digital artistic practices, applying the most important interactive technology methodologies based on computers, to evaluate the potential of digital technology in its creative and artistic practice.

**LND4012 CHARACTER DEVELOPMENT**

Design characters that fulfill a specific purpose in the narrative structure of an animation using formalistic and psychological techniques and strategies in animations geared towards different audiences and spectators.

**LND4022 PROFESSIONAL PRACTICES 2**

Identify professional and effective digital animation solutions to communication and design problems within a company or organization, analyzing the specific conditions of the client.

**LND4042 SELECT TOPICS 2**

Examine current 3D animation development methods and techniques as applied to entertainment, designing products such as video games, commercials, movies and videos.

**LND4072 WEB AND MOBILE DEVICE ANIMATION**

Develop digital animations by using different software and platforms to create digital interaction projects.

**LIV4112 ART DIRECTION**

Develop a comprehensive view based on the interpretation of the art management process, to identify the contextual reality of managing, negotiating and marketing design proposals.

**LND4082 DESIGN OF VIRTUAL ENVIRONMENTS**

Build virtual environments through modeling techniques, and use of lighting, textures and interaction, developing a high quality virtual environment for animated scenes.

**LND4062 VISUAL EFFECTS**

Identify the visual effects production processes, applying different image composition and manipulation techniques to develop complex digital animation projects.

**LND4092 SELECT TOPICS 3**

Examine visual narrative topics by creating scripts, characters and storyboards to identify the latest trends in the area.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# ARCHITECTURE

## LAP1012 ANALYSIS AND REPRESENTATION

Differentiate space representations, using body-language applications in two-dimensional planes to identify fundamental drawing elements.

## LAR1012 CONTEXT, SPACE AND TIME

Identify the dialectic relation between living and projecting in specific historic places and moments, analyzing theoretical concepts to connect reflexive and productive operations.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LAR1022 DESIGN PROCESSES WORKSHOP I

Identify the relationships between the elements of design problems through the use of diagrams, sketches of three-dimensional models to develop sustainable solution proposals.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## LAR1052 ANALYSIS AND VISUALIZATION

Relate the elements of design problems through diagrams, sketches and three-dimensional models, to come up with conclusions and creative proposals.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LAR1042 GEOMETRY I

Describe architectural space through the use of manual and digital tools to analyze and interpret architectural space.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## LAR1032 SPACE MODELS

Identify architectural concepts by creating and constructing models and mockups to express your own ideas about three-dimensional architectural space.

## LAR1062 DESIGN PROCESSES WORKSHOP II

Design spaces by re-conceptualizing the programmatic components, shapes and materials found in previously constructed areas, to identify the reorientation process of a pre-existing building.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LAR2022 GEOMETRY II

Interpret real three-dimensional areas through manual and digital drawing tools to develop and communicate architectural design proposals.

## LIC2022 CONSTRUCTION MATERIALS LAB

Identify the mechanical properties of construction materials by performing destructive, non-destructive and other quality control tests to understand their relationship and functionality in construction sites.

## LEX0132 FOREIGN LANGUAGE III \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LAR2012 CONSTRUCTION MATERIALS AND PROCEDURES**

Identify the construction materials and fundamental elements, through the relationship of their properties and characteristics, to distinguish optimization mechanisms in the construction process of a determined building.

### **LAR2032 ARCHITECTURAL DESIGN WORKSHOP I**

Understand the different elements that make up morpho-ecologies, analyzing the environment to develop architectural design projects.

### **LAI2072 ARCHITECTURAL COMMUNICATION**

Identify the most appropriate manual and digital representation techniques and tools through the elaboration of graphic, audiovisual and digital material to distinguish the communication, presentation and promotion processes of architectural and interior projects.

### **LAR2042 STRUCTURAL PRINCIPLES**

Identify the support logic by analyzing different structural systems to provide integrity to an architectural object.

### **LAR2052 ARCHITECTURAL DESIGN WORKSHOP II**

Define the complexity of urban areas, analyzing the field of action and places to design livable spaces.

### **LAR3012 ARCHITECTURE FROM ANTIQUITY TO THE BAROQUE PERIOD**

Describe the design intentions of the Western world from the classic era to the Baroque, by analyzing the relationship between city, architectural object and insertion media, to identify how this shapes urban-architectural proposals.

### **LAR3022 STRUCTURAL STABILITY I**

Apply free body diagrams and create equilibrium equations in two and three dimensions, identifying the principles and conditions of equilibrium, to determine those that provide structural stability to an architectural object.

### **LIC3042 BASIC INSTALLATIONS**

Determine relevant installations by applying procedures, guidelines and representation elements to determine the building conditions.

### **LAR3032 PROFESSIONAL PRACTICES 1**

Apply theoretical knowledge and competencies acquired during your *licenciatura* in architecture studies, collaborating with firms, offices and construction companies in su-

pervised professional practices to recommend solutions to real architectural design, urban and construction problems.

### **LAR3042 ARCHITECTURAL DESIGN WORKSHOP III**

Interpret the differences between urban and rural design processes to redefine the conditions of space and rural landscape to develop architectural projects that can be integrated with the environment.

### **LAI3022 3D VISUALIZATION**

Identify the tridimensional representation processes through modeling and digital visualization techniques to create architecture and interior architecture projects.

### **LAR3052 NEW SPAIN ARCHITECTURE**

Examine architectural solutions used in between the 16th and 19th centuries in New Spain, analyzing the society that produced them to identify the relationship between history and architectural works.

### **LAI3052 COMFORT AND ENERGY IN INTERIOR SPACES I**

Identify the use of resources in a construction, analyzing environmental and human factors to develop a sustainable and bioclimatic architectural project.

### **LAR3072 CONSTRUCTION COST**

Identify the methodology used in determining how much a construction project costs, applying it to create construction budgets, using the main manual and computerized systems available.

### **LAR3062 STRUCTURAL STABILITY II**

Evaluate structural elements subjected to strength systems, according to the properties and characteristics of flat sections to infer the diverse internal structural effects that have permissible values in a specific material.

### **LAI3082 DIGITAL MODELING AND PRODUCTION**

Develop digital models for innovative interior space product and object prototypes, using CAD-CAM-CNC (Computer Aided Design - Computer Aided Manufacturing - Computer Numerical Control) to create them digitally.

### **LAR3082 ARCHITECTURAL DESIGN WORKSHOP IV**

Discover the relationship between territory, history and culture, applying intervention strategies in relevant historical contexts to develop proposals for public spaces.

**LAR4022 MODERN ARCHITECTURE**

Explain how a global movement, such as the modern one, was expressed in different countries, defining architectural projects to identify the causes and consequences of such movements in the local environment.

**LAI4012 COMFORT AND ENERGY IN INTERIOR SPACES II**

Recommend interior comfort strategies in a construction, analyzing environmental and human factors to develop an architectural project that is sustainable and bioclimatic.

**LAR4042 PARAMETRIC DESIGN**

Discover 3D visualization models to apply creative thinking through experimentation and implementation of digital design processes.

**LAR4012 MODELING CONSTRUCTION INFORMATION**

Create 3D designs and their corresponding paperwork, in a coordinated environment, based on digital models and media to develop architectural designs that can be visualized, communicated and coordinated with different disciplines, such as construction and structural engineering.

**LAR4032 PROFESSIONAL PRACTICES 2**

Analyze a real architectural project through collaborative discussion with different professionals groups to identify the possible design strategies, as supervised professional practices.

**LAR4052 INTEGRAL ARCHITECTURAL DESIGN WORKSHOP I**

Understand the design components of sustainable buildings, speculating about their relationships to create an environment that promotes energy efficiency and improvement in health conditions of those who live in them.

**LAR4062 CONSTRUCTION MANAGEMENT**

Evaluate the different organization and planning processes in architectural project development to improve construction project management.

**LAR4072 CONTEMPORARY ARCHITECTURE**

Explain the pluralist condition that characterizes current architecture, through the analysis of historical events, to develop proposals to architectural projects with a contemporary point of view.

**LAR4082 CITY I**

Explain the relationships that are established in architectural projects and their environment, analyzing the landscape, ur-

ban structure and existing regulations, to develop urban-architectural proposals that consider the importance of the area.

**LAR4102 INTEGRAL ARCHITECTURAL DESIGN WORKSHOP II**

Create complex, integral components, systems and processes, establishing strategies to develop solutions to architectural space problems.

**LAR4092 SELECT TOPICS 1**

Analyze urbanism topics by building design strategies and actions to develop urban-architectural proposals.

**LAR4122 STRUCTURAL ANALYSIS**

Evaluate the different mechanical elements that make up a basic support system, identifying the properties and characteristics of different structural typologies to consider if there is congruence with the architectural project.

**LAR4132 CITY II**

Analyze the relationship between construction of urban space and the elements that make up the territory, identifying the different urban morphology models, landscape, metropolitan areas and city fragments, to apply them in urban practices.

**LAR4112 ARCHITECTURAL HERITAGE**

Evaluate natural and built heritage, through a physical analysis of historical architectural works, to conserve and improve heritage environments.

**LAR4152 INTEGRAL ARCHITECTURAL DESIGN WORKSHOP III**

Recommend new space typologies through hybrid use, activities and conventional customs, to develop answers to new ways of living and producing.

**LAR4142 SELECT TOPICS 2**

Examine current city topics, researching the main theories and manifestos to develop views to different current scenarios.

**LAR4172 STRUCTURE DESIGN**

Select different structural components through the design of housing projects.

**LAR4182 SUSTAINABILITY IN ARCHITECTURE**

Evaluate an architectural project, using design, environmental and human analyses, to determine if the project is sustainable and bioclimatic.

**LAR4202 COMPREHENSIVE WORKSHOP**

Define the conditions and performance of responsive, socio-environmental design, analyzing the change and transformation needs of an architectural project, to develop an answer that takes into account the impermanence of man, their complex requirements and the environment in which they develop.

**LAR4192 SELECT TOPICS 3**

Analyze different vanguard technologies, applying them to architectural projects and proposals to constantly innovate in your profession.

**LAR4162 ARCHITECTURE THEORY AND CRITICISM**

Apply critical thinking, through practice, reading and writing, among other mediums, to develop an intellectual point of view with which to evaluate current architectural works and the epistemological schools of thought that back them up.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing

socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# INTERIOR ARCHITECTURE

## LAP1012 ANALYSIS AND REPRESENTATION

Differentiate space representations, using body-language applications in two-dimensional planes to identify fundamental drawing elements.

## LAR1012 CONTEXT, SPACE AND TIME

Identify the dialectic relationship between living and projecting in specific historic places and moments, analyzing theoretical concepts to connect reflexive and productive operations.

## LAI1012 QUALITIES OF INTERIOR SPACES I

Identify how the interior space modifies human perception, analyzing sensory and illumination concepts to create interior architecture projects that are comfortable and environmentally adequate.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LAI1022 INTERIOR DESIGN PROCESSES WORKSHOP I

Identify the basic elements and concepts of interior architecture design, analyzing the properties that make up the space and applying them in elemental spatial developments.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## LAR1052 ANALYSIS AND VISUALIZATION

Relate the elements of design problems through diagrams, sketches and three-dimensional models, to come up with conclusions and creative proposals.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LAR1042 GEOMETRY I

Describe architectural space through the use of manual and digital tools to analyze and interpret architectural space.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LAR1032 SPACE MODELS

Identify architectural concepts by creating and constructing models and mockups to express your own ideas about three-dimensional architectural space.

## LAI1032 INTERIOR DESIGN PROCESSES WORKSHOP II

Develop solutions to essential interior space problems using micro-space, to create environments that respond to the fundamental basics of human habitat.

## LAI2042 QUALITIES OF INTERIOR SPACES II

Relate the determinants of interior environment, space, and human behavior, applying habitat analysis methods and developing them to optimize interior environments.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LAR2022 GEOMETRY II

Interpret real three-dimensional areas through manual and

digital drawing tools to develop and communicate architectural design proposals.

#### **LXO132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations

#### **LAI2022 MATERIALS AND PROCEDURES IN INTERIOR CONSTRUCTION I**

Define the characteristics of classic materials as interior architecture finishes according to their properties, historic evolutions and the needs of the architectonic space, identifying their production, placement and maintenance processes, to discern their repercussion in interior space and comfort.

#### **LAI2012 BASIC STRUCTURAL SYSTEMS**

Identify the structural logic in different support systems, from the analyzing of different formal typological languages that grant integrity; identify the way that they absorb and transmit strength in a project in order to apply them to interior architecture proposals.

#### **LAI2032 INTERIOR ARCHITECTURE WORKSHOP I**

Define basic domestic spaces by identifying human needs and demands, to experiment with habitat concepts and the user's profile.

#### **LAI2072 ARCHITECTURAL COMMUNICATION**

Identify the most appropriate manual and digital representation techniques and tools through the elaboration of graphic, audiovisual and digital material to distinguish the communication, presentation and promotion processes of architectural and interior projects.

#### **LAI2052 BASIC INTERIOR INSTALLATIONS**

Define, in an interior architecture project, electric, hydraulic, sanitary and gas installations, as well as the calculation methods of their characteristics and determinants to develop comfortable proposals to interiors of new and remodeling projects, including them in blueprints.

#### **LAI2062 MATERIALS AND PROCEDURES IN INTERIOR CONSTRUCTION II**

Define the characteristics of classic materials as interior architecture finishes according to their properties, historic evolutions and the needs of the architectonic space, identifying their production, placement and maintenance processes, to discern their repercussion in interior space and comfort.

#### **LAI2082 INTERIOR ARCHITECTURE WORKSHOP II**

Define branding, applying it in projects and in environmental elements associated to spaces, to recommend innovative interior architecture solutions to commercial, corporate and cultural problems.

#### **LAR3012 ARCHITECTURE FROM ANTIQUITY TO THE BAROQUE PERIOD**

Describe the design intentions of the Western world from the classic era to the Baroque, by analyzing the relationship between city, architectural object and insertion media, to identify how this shapes urban-architectural proposals.

#### **LAI3012 STANDARDS AND DETAILS IN INTERIOR DESIGN**

Develop solutions to construction details of different interior elements and conventional unions on drawings and blueprints applicable to interior construction projects.

#### **LAI3042 PROFESSIONAL PRACTICES I**

Apply the theoretical knowledge and disciplinary competencies acquired during the *licenciatura* in interior architecture, collaborating in professional practices at firms, offices and design workshops to find solutions to real interior design problems.

#### **LAI3032 INTERIOR ARCHITECTURE WORKSHOP III**

Design interior production and workspaces, integrating cultural and technological determinants to the design process, finding solutions to spatial requirements related to current life styles that impact workspaces and environments.

#### **LAI3022 3D VISUALIZATION**

Identify the tridimensional representation processes through modeling and digital visualization techniques to create architecture and interior architecture projects.

#### **LAR3052 NEW SPAIN ARCHITECTURE**

Examine architectural solutions used in between the 16th and 19th centuries in New Spain, analyzing the society that produced them to identify the relationship between history and architectural works.

#### **LAI3052 COMFORT AND ENERGY IN INTERIOR SPACES I**

Identify the use of resources in a construction, analyzing environmental and human factors to develop a sustainable and bioclimatic architectural project.

#### **LAI3072 COSTS IN INTERIOR PROJECTS**

Analyze the factors included in interior construction costs, understanding the methodology to be used to finance an in-

terior architecture project to define the final price and prepare the corresponding paperwork.

#### **LAI3062 ILLUMINATION OF INTERIOR SPACES**

Identify the relationship between technical and light perception aspects, both natural and electric, analyzing the physical, mathematical and environmental concepts to understand the elements of light design in interior spaces.

#### **LAI3082 DIGITAL MODELING AND PRODUCTION**

Develop digital models for innovative interior space product and object prototypes, using CAD-CAM-CNC (Computer Aided Design - Computer Aided Manufacturing - Computer Numerical Control) to create them digitally.

#### **LAI3092 INTERIOR ARCHITECTURE WORKSHOP IV**

Develop temporary space proposals, applying digital fabrication strategies to identify the space needs, such as exposure, providing shelter or offering different services to diverse audiences.

#### **LAI4012 COMFORT AND ENERGY IN INTERIOR SPACES II**

Recommend interior comfort strategies in a construction, analyzing environmental and human factors to develop an architectural project that is sustainable and bioclimatic.

#### **LAR4042 PARAMETRIC DESIGN**

Discover 3D visualization models to apply creative thinking through experimentation and implementation of digital design processes.

#### **LAI4022 MANAGEMENT OF INTERIOR DESIGN PROJECTS**

Identify the processes and actions that intervene in construction management, understanding the planning, control, evaluation and maintenance processes, to prepare the required paperwork and manuals that are a fundamental part of managing interior construction projects.

#### **LAI4032 INTERVENTION IN INTERIOR SPACES**

Identify how to responsibly conserve and maintain heritage buildings, analyzing the construction practices in historical contexts, in order to interpret current conditions as a framework for intervention proposals that are sensitive to the space and cultural values, thus improving the existing environmental qualities.

#### **LAI4052 PROFESSIONAL PRACTICES 2**

Analyze real interior architecture projects, collaborating with different professional groups to identify possible design strategies under supervised professional practices.

#### **LAI4042 INTERIOR ARCHITECTURE INTEGRAL WORKSHOP I**

Design interiors and carry out executive projects by solving

specific infrastructure and environmental space problems to recommend solutions that answer the needs of contemporary societies, regarding health and wellbeing.

#### **LAI4092 MODERN AND CONTEMPORARY INTERIORS**

Evaluate the impact of ideological positions in interior space solutions in construction works from the 19th century to date, analyzing their context to develop interior architecture proposals.

#### **LAI4102 INTEGRAL INTERIOR ARCHITECTURE WORKSHOP II**

Evaluate cultural contexts - social, economic and political - and their impact in interior space, creating solutions to reuse, revitalize and recover spaces in which contemporary needs are united with cultural and historical significance, to propose designs that are economic, aesthetic, functional and environmentally sustainable, answering to users' needs.

#### **LAI4062 SELECT TOPICS 1**

Analyze lighting technology topics, building strategies and action plans to develop interior lighting projects.

#### **LAI4072 SELECT TOPICS 2**

Examine vanguard topics related to interior space and technology, analyzing the main theories to create environments that answer to the fundamental needs of human living

#### **LAI4082 SELECT TOPICS 3**

Analyze current topics in special installations, examining different technologies to apply them to interior architecture projects.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area

of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

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# FINE ARTS

## LAP1012 ANALYSIS AND REPRESENTATION

Differentiate space representations, using body-language applications in two-dimensional planes to identify fundamental drawing elements.

## LHC1022 ART AND ITS DISCOURSES

Describe the peculiarities of the socio-historical-cultural context that led to the positioning of art as a specific field of objects with symbolic value by identifying the progressive transition that occurred from the Greek era to illustration to distinguish the particularities of this discourse and its adoption, that is limited to objects with similar characteristics outside the Westernized world.

## LAP1022 THREE-DIMENSIONAL EXPLORATION

Identify three-dimensional space, describing basic sculpture concepts to define constructions in three dimensions.

## LAP1032 PICTORIAL FUNDAMENTALS

Differentiate physical materials and components used in basic two dimensional representation techniques, with painting exercises to identify the diversity of their uses.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LAP1052 DRAWING AND SPACE

Define a graphic language through direct observation of forms and their environment, to compare the different possibilities in space representation.

## LIV1072 PHOTOGRAPHY

Identify the components of a photo by using techniques and equipment to create images.

## LIV1022 FUNDAMENTALS OF DIGITAL IMAGES

Play simple vector images or bitmaps using specialized digital imaging software that can be used in both screen and print design projects.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LAR1032 SPACE MODELS

Identify architectural concepts by creating and constructing models and mockups to express your own ideas about three-dimensional architectural space.

## LAP1042 TWO-DIMENSIONAL REPRESENTATIONS

Classify formal two-dimensional drawings under criteria established by a thought system and their perceptible appearances showing an effective model of space in a pictorial context, to identify the beginnings of a pictorial style.

## LAP2012 DEVELOPMENT OF ARTISTIC THINKING

Define the basic concepts of contemporary art, analyzing art categories and their current vocabulary, to explain artistic practices that identify the contemporary world.

## LAP2022 DRAWING AND FORM

Define your own graphic language, through direct observation and drawings of proportions and symmetry of natural and anthropomorphic models, to compare different possibilities when representing figures.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LAP2032 FUNDAMENTALS OF THREE-DIMENSIONALITY

Identify the different three-dimensional construction methods, applying tools in workshops to compare sculpture results.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LAP2042 BI-DIMENSIONAL THEME WORKSHOP**

Express different representation possibilities for traditional space relationships in painting, by analyzing pictorial types to explain iconic relationships in space, volume and time in a pictorial plane.

### **LAP2052 ART, SPACE AND TIME**

Discover the production of works based on physical environment, as well as works of art in their space dimension, through contextualization of site-specific artistic production to apply it when creating works.

### **LAP2072 BI-DIMENSIONAL INTEGRATION WORKSHOP**

Examine the symbolic relationship through two-dimensional representation in type representation problems to classify different noticeable and symbolic appearances in pictorial projects.

### **LAP2062 THREE-DIMENSIONAL WORKSHOP**

Analyze three-dimensional forms, identifying qualities in materials, appearances, and transformations to relate space-form

### **LHC2062 POST-STRUCTURALISM THEORY AND THOUGHT**

Identify the main hubs of the dominant Western theoretical stages during the last decades, to understand the problems of post-structuralist thinking through the analysis the contemporary period.

### **LAP3012 SCOPES OF CONTEMPORARY ART**

Analyze contemporary movements in the visual arts through critical exercise of contemporary art and visual culture to create a creative and contemporary practice.

### **LAP3042 ARTISTIC RESEARCH**

Analyze the basic concepts of contemporary art, classifying art categories and their current vocabulary to evaluate the artistic practices that define the contemporary world.

### **LAP3022 PROFESSIONAL PRACTICES 1**

Develop the interdisciplinary analytical tools learned during your *licenciatura* studies through innovative and current artistic projects, applying theoretical and practical concepts.

### **LAP3052 DRAWING AND HYPERMEDIA WORKSHOP**

Apply different reflective and technical procedures to create expansive forms in drawing, relating multiple mediums with variable contents, according to their spectators, audiences and users.

### **LAP3032 THREE-DIMENSIONAL THEME WORKSHOP**

Examine the space-volume relationships in three-dimensional representation of sculptures to identify the different volumetric design methods, through different construction practices.

### **LAP3082 INTER-DISCIPLINARY AREAS**

Analyze the intersection of all visual art mediums through critical exercise with contemporary art and visual culture to develop a creative practice, now and in the future.

### **LHC3062 ART CRITICISM AND CURATORSHIP**

Explain the development of the most important art criticism and curatorial practice moments, to understand an exhibition's art criticism and curatorial discourse through a detailed identification and analytic relationship.

### **LAP3062 GRAPHIC EXPERIMENTATION**

Identify the different engraving techniques, applying them to contemporary graphics to understand graphic works.

### **LAP3072 CONTEMPORARY IMAGE AND SUPPORT**

Apply different image production methods, exploring the non-traditional ideas of photography to identify their use and reach in the current world.

### **LAI3082 DIGITAL MODELING AND PRODUCTION**

Develop digital models for innovative interior space product and object prototypes, using CAD-CAM-CNC (Computer Aided Design - Computer Aided Manufacturing - Computer Numerical Control) to create them digitally.

### **LAP3092 SELECT TOPICS 1**

Analyze contemporary arts topics, evaluating concrete problems in formal and conceptual relationships between color, light, form, volume and different materials to create a project with interactions between painting, sculpture and other media.

### **LAP4012 SCOPES AND NEW MEDIA**

Identify the relationship between art, culture and technology, developing a theoretical framework to create a critical reflection of digital arts and the concepts of digital aesthetics.

**LAP4052 ART AND DIGITAL TECHNOLOGY**

Investigate different digital artistic practices, applying the most important interactive technology methodologies based on computers, to evaluate the potential of digital technology in its creative and artistic practice.

**LDA4012 PERFORMANCE STUDIES**

Analyze performance by relating the historical, cultural and philosophical contexts of different study areas, to create performance projects.

**LAP4042 CONTEMPORARY GRAPHICS**

Develop graphic workshop art to examine the different techniques that make up engravings through the relationship of different techniques.

**LAP4022 PROFESSIONAL PRACTICES 2**

Apply interdisciplinary teaching-learning tools acquired during your studies to plan complex and enriching artistic projects that develop an active practice of the discipline.

**LAP4032 SELECT TOPICS 2**

Analyze art strategy topics, developing individual or group works to create alternative productions to conventional ones.

**LAP4062 ART AND SOCIAL SPACE**

Relate the different meanings of social space with artistic practices of different natures to create projects that can be adequately established and contribute to the different social contexts by applying concrete strategies.

**LAP4092 VISUAL EXPERIMENTATION SEMINAR**

Develop an artistic work by analyzing the hybrid character of the visual and the visible, to evaluate the reach of image in contemporary art.

**LAP4072 SCOPE INTEGRATION SEMINAR**

Evaluate the notion of artistic practice to identify the polysemic character of the definition of artist, creating personal projects.

**LAP4082 SELECT TOPICS 3**

Relate current topics about managing and distributing contemporary art to create a cultural project through comparative analysis of concrete cases.

**LHC4082 THEORY OF CONTEMPORARY ART**

Understand the different theoretical frameworks to compose a critical analysis of contemporary art, by identifying the relationship with the economic, social and political environment in which it was created.

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**MAT0022 MATH AND CULTURE**

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**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

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**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

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**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

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# DANCE

## LDA1022 BALLET 1

Differentiate the theoretical-practical concepts of ballet, to execute the basic steps and positions through exercises that stimulate the internal body connections.

## LDA1012 CONTEMPORARY DANCE 1

Identify the use of your body when executing basic specialized movements, applying them to warm-up, choreographic sequences and the initial development of musicality and rhythm, using movement, body conscience and dynamic dance sequences.

## LTE1012 ACTING IMPROVISATION

Understand acting improvisation techniques and their relevance through basic exercises to identify the main characteristics of a theater actor's stage performance.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LDA1032 DANCE STAGE PRACTICE I

Apply, at a corporal level, a wide vocabulary and diverse sequences of choreographic movements to produce repertoire works in group rehearsals under the direction of teachers or guest choreographers.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LDA1062 BALLET 2

Identify the similarities and differences that exist between steps and movements through exercise and movement sequences, applying them adequately to your executions.

## LDA1082 CHOREOGRAPHIC COMPOSITION I

Identify the stage languages for movements, applying them to the development of expressive and communicative development, using improvisation, ensemble exploration and compositional studies.

## LDA1052 CONTEMPORARY DANCE 2

Relate the physical potential with flexibility, strength, resistance and movement efficiency to understand the skills that help neuromuscular coordination; use movement exercises, corporal conscience and dynamic dance sequences.

## LTE1052 MUSICAL AND RHYTHMIC TRAINING

Identify the map of sounds, rhythms and notes, by studying music theory to apply the fundamentals of reading notes and rhythms to an elemental song repertoire.

## LDA1042 BIO-DYNAMIC FUNDAMENTALS OF DANCE

Identify the anatomy of the body as applied to dance, to develop your physical potential and improve your flexibility, strength, and movement efficiency, through practices of experiential anatomy, training and introduction to the principles of nutrition as applied to dance.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LDA2022 BALLET 3

Understand the adequate mechanisms to develop exercises with greater equilibrium, muscle power and skill, applying movement phrases that trigger these abilities.

## LDA2042 CULTURES OF DANCE

Apply the fundamental principles of theoretical studies of different dance styles, analyzing the historical, cultural and philosophic contexts to understand the history of classic, modern and social dance, from its origins until the first half of the 20th century.

## LDA2012 CONTEMPORARY DANCE 3

Understand the equilibrium between internal kinesthesia

and the execution of external forms, to identify the skills that help stage and expression practices, developing movement, conscience, body expression and dynamic dance sequence exercises.

#### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LDA2032 DANCE STAGE PRACTICE II**

Develop physical, critical and creative skills by memorizing choreographic repertoires at an intermediate level; interpret choreographies of different dance types to dance at a pre-professional level in public stages.

#### **LDA2062 BALLET 4**

Apply small spins to develop *promenades* and *pirouettes*, executing exercises and movements to acquire these skills.

#### **LDA2052 CONTEMPORARY DANCE 4**

Analyze movement with different qualities, in order to distinguish the skills that help stage and expression practices, developing movement, conscience, body expression and dynamic dance sequence exercises.

#### **LDA2082 DRAMATURGY OF THE BODY**

Identify your drama potential, both in dance criticism and in choreography, to analyze the construction, significance and character in works based on movement. This will be done through choreographic and stage studies that are based on the language of movement.

#### **LDA2072 SOMATIC STUDIES**

Apply different methodologies of somatic movement education directed at dance, to evaluate the skills that help stage and expression practices, developing explorations of movement, touch, imagination, voice, breathing, written reflection and awareness.

#### **LDA3042 BALLET 5**

Combine simple turns and jumps to express greater technical complexity, through exercises and movements that require the adequate use of internal muscle connections.

#### **LDA3052 CHOREOGRAPHIC COMPOSITION II**

Develop choreographic composition practices to apply them in scenic discourses, using construction methods, experimental content, ensemble topics and compositional studies.

#### **LDA3032 CONTEMPORARY DANCE 5**

Apply movement conscience with an ability to increase the range of different movements to relate dance techniques with creative practices, developing kinetic, body expression and dynamic dance sequence exercises.

#### **LDA3022 DANCE AND THE CAMERA**

Analyze the different aspects of the relationship between dance and the camera that focus on the cinematographic canvas, to develop a perspective and body expression through technology, creating movement, image and camera studies.

#### **LDA3012 PROFESSIONAL PRACTICES 1**

Analyze the theoretical-practical concepts of a specific subject in dance, identifying the professional environment to develop a final practical research project, applying research methodologies.

#### **LDA3062 BALLET 6**

Use *entrechat* to express more bravura in your jump sequences, through exercises and movements that allow you to develop this skill.

#### **LDA3092 CONTEMPORARY DANCE 6**

Develop the ability to summarize range and detail in different movements to apply them to solve form challenges and recommend dance technique proposals; you will develop this through kinetic, body expression and dynamic dance sequence exercises.

#### **LDA3082 DANCE IN CONTEMPORARY STAGES**

Analyze the fundamental principles of theoretical studies of various styles and types of contemporary dance, examining the historical, cultural and philosophical contexts of this discipline to identify the history and culture of contemporary dance from 1980 to date.

#### **LTE3082 SCENIC IMAGE**

Relate the concepts of stage image by developing the scenic space and creative exercises to plan the elements of the scenic image

#### **LDA3072 METHODOLOGIES TO TEACH DANCE**

Apply theoretical-practical concepts of teaching dance, analyzing the characteristics of movement as related to teach-

ing, to identify the planning and teaching process of a basic or intermediate level class.

#### **LDA3102 COMPLEMENTARY DANCE TECHNIQUE**

Apply the different methodologies of dance training and movement to develop skills that help your stage and expressive skills, using movement, action, individual and group explorations.

#### **LDA4052 BALLET 7**

Develop technical potential to adequately combine turns in different positions with jumps of medium complexity, starting from exercises and movement sequences that contain the necessary elements to obtain high quality results.

#### **LDA4042 CONTEMPORARY DANCE 7**

Develop technical potential, through analysis of human conscience, in movement as an artistic expression, to design proposals to challenges of interpretation and physicality in dance techniques.

#### **LDA4012 PERFORMANCE STUDIES**

Analyze performance by relating the historical, cultural and philosophical contexts of different study areas, to create performance projects.

#### **LDA4062 DANCE STAGE PRACTICE III**

Examine the integral skills of an interpretive dance to participate in a group or dance company at a semi-professional level, establishing rigorous commitment with the execution of repertoire works.

#### **LDA4022 PROFESSIONAL PRACTICES 2**

Develop solutions to real problems in different dance areas, analyzing the fundamental theoretical concepts learned during your studies to identify their practical applications.

#### **LDA4032 SELECT TOPICS 1**

Analyze current topics in dance improvisation, examining the human body as a living, expressive entity that is constantly moving, developing greater knowledge about ensemble and spontaneous composition studies.

#### **LDA4102 BALLET 8**

Relate all the studied steps and movements by distinguishing the similarities and differences between them, and executing exercises and choreographic works to develop them with high technical and artistic quality.

#### **LDA4082 CHOREOGRAPHIC COMPOSITION III**

Develop directing skills to create dance numbers and performances before audiences, through the interpretation of choreographic practice.

#### **LDA4092 CONTEMPORARY DANCE 8**

Identify the idea of movement as a way of thinking, to differentiate and analyze dance with a high degree of technical complexity and the artistic expression required by developing dynamic dance practices.

#### **LDA4072 SELECT TOPICS 2**

Examine writing, discourse and critical thinking topics of dance as a profession, identifying the current importance, at a local and international level, to develop strategies that respond to them.

#### **LDA4112 SELECT TOPICS 3**

Analyze vanguard topics in the language of movement, examining ideas and practices in current dance trends, to apply different ways of thinking, both verbally and in writing, as well as in movement in exploring stage studies.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# VISUAL INFORMATION DESIGN

## LAP1012 ANALYSIS AND REPRESENTATION

Differentiate space representations, using body-language applications in two-dimensional planes to identify fundamental drawing elements.

## LIV1012 ELEMENTS OF VISUAL MESSAGES

Identify the elements of the visual alphabet by applying tools and design techniques to configure visual messages considering the syntax of the image.

## LIV1022 FUNDAMENTALS OF DIGITAL IMAGES

Play simple vector images or bitmaps using specialized digital imaging software that can be used in both screen and print design projects.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LIV1032 PRODUCTION OF VISUAL INFORMATION

Identify the different styles and visual cultures throughout history by analyzing their historical, political and social context to design pieces that have an appropriate meaning to a specific audience.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## LAR1052 ANALYSIS AND VISUALIZATION

Relate the elements of design problems through diagrams, sketches and three-dimensional models, to come up with conclusions and creative proposals.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LIV1042 VISUAL MESSAGE CONFIGURATION

Understand the process of significance to develop an effective visual message, by recognizing visual grammar.

## LIV1052 EDITING DIGITAL IMAGES

Design digital images to relate a visual message to a specific audience using specialized software to produce images and thus effectively define the appropriate technical parameters of their medium.

## LIV1072 PHOTOGRAPHY

Identify the components of a photo by using techniques and equipment to create images.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LIV1062 TYPESETTING

Design visual messages based on typographic strategies using specialized software to structure graphic proposals that guarantee that the information is read, thus achieving an effective process of visual communication to transmit ideas.

## LIV2012 BRAND AND VISUAL SYSTEMS DESIGN

Describe the mission, vision and values of an institution, organization, company or brand, by creating a graphic identity manual that serves as a guide for effective communication with different audiences, both internal and external.

### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **LIV2022 INFOGRAPHICS AND DATA VISUALIZATION**

Design visualizations and infographics by producing maps, diagrams, or icons to explain a fact or phenomenon that is published in a digital and/or printed design product.

### **LIV2042 EDITORIAL ENGINEERING**

Create editorial engineering products that include the application, layout and creation of files using information design strategies, to plan the publication of editorial content.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LIV2032 VISUAL SEMIOTICS AND RHETORIC**

Identify the main contributions of semiotics and rhetoric to study visual messages, by analyzing relevant theories and examples in order to have a basis for visual information design decisions.

### **LIV2052 DESIGN FOR PUBLICITY**

Identify the elements of an effective advertising campaign, based on the specific conditions of the target audience, the market and the competition, following the principles of semiotics and visual rhetoric to develop an organization or brand's communication strategies.

### **LLI2042 LITERARY MODELS - NARRATIVE**

Identify structural and thematic distinctions between the epic, the novel and the short story by comparing the various quantitative, qualitative and narrative enunciation elements that make up a story to analyze paradigmatic works ranging from the epic to stories to the most recent novels of the western world in their printed and audiovisual representations.

### **LIV2072 EDITORIAL PRODUCTION**

Create editorial products periodically, through the development of new editorial concepts that can be marketed to meet the quality standards of information design, to recommend proposals to meet the needs, tastes and preferences of readers and advertisers.

### **LIV2062 PRODUCTION IN PRINTED MEDIA**

Understand the difference between production systems in printed media, the types of materials and technical require-

ments required, applying different techniques to identify the relevance of each system to use them as a solution to a specific production need.

### **LIV3022 INFORMATION ARCHITECTURE**

Organize complex information systematically, applying different methodologies to create prototypes that can be tested, to obtain optimum navigability in any interactive system.

### **LIV3042 DESIGN OF COLLATERAL MATERIAL**

Produce promotional materials for a product or service through brand strategies to establish an emotional connection between the brand and the consumer.

### **LIV3032 TEACHING AND ORIENTATION DESIGN**

Examine process operating and physical movements situations to develop operational-cognitive visual solutions, by analyzing the physical, cultural and social context of each situation.

### **LIV3052 INNOVATION AND DESIGN METHODS**

Develop innovative design strategies based on the selection of research tools, analysis, preparation and development of interactive experiences to identify information problems in companies and society.

### **LIV3012 PROFESSIONAL PRACTICES 1**

Prepare appropriate and competent design solutions to develop design skills through professional practices in a company or organization.

### **LIV3082 DESIGN FOR EDUCATION**

Develop efficient electronic educational material design solutions, using narrative as the main strategy, to encourage and motivate the end user towards autonomous and/or guided learning.

### **LIV3062 CORPORATE INFORMATION DESIGN**

Develop strategies to identify information dissemination and interaction problems in organizations by applying research and design methodologies.

### **LIV3102 QUALITATIVE RESEARCH FOR DESIGN**

Apply qualitative research techniques by analyzing social information dissemination and organization problems to understand the characteristics of each technique.

### **LAI3082 DIGITAL MODELING AND PRODUCTION**

Develop digital models for innovative interior space product and object prototypes, using CAD-CAM-CNC (Computer Aided Design - Computer Aided Manufacturing - Computer Numerical Control) to create them digitally.

**LIV3072 MOTION GRAPHICS I**

Create sequenced images to express a visual message to a specific audience using different types of animations and electronic platforms.

**LIV3092 SELECT TOPICS 1**

Develop image reproduction projects by applying creative techniques and processes to establish a visual impact that persuades different audiences.

**LIV4062 DESIGN AND INNOVATION IN BUSINESS**

Apply specific information design methodologies, creating innovative approaches and services to identify strategies that help organizations to add value in their businesses.

**LIV4012 INTERACTION DESIGN**

Apply strategies and methodologies to solve interaction problems, through artifact layout and prototypes to determine its functionality and usability.

**LIV4042 DESIGN FOR SOCIAL AND CULTURAL PROMOTION**

Develop projects, using design methodologies to solve information communication problems in order to develop strategies for social and cultural promotion.

**LIV4032 3D IMAGES**

Create three-dimensional static or moving images using specialized 3D software to express a visual message for a specific audience.

**LIV4022 PROFESSIONAL PRACTICES 2**

Identify professional and effective design proposals to solve communication and design problems within a company or organization, taking into consideration the specific conditions of the client.

**LIV4052 SELECT TOPICS 2**

Examine interaction process topics, by analyzing and describing them, both digitally and with objects, to identify how people relate to both platforms.

**LIV4112 ART DIRECTION**

Develop a comprehensive view based on the interpretation of the art management process, to identify the contextual reality of managing, negotiating and marketing design proposals.

**LIV4092 DESIGN OF SERVICES AND EXPERIENCES**

Categorize service and experience design techniques, creating service plans and experiential maps, to improve people's experiences through multiple points of contact.

**LIV4082 MOTION GRAPHICS II**

Create animated images and graphics using specialized editing and postproduction software to express a visual message for particular audience.

**LIV4072 WEB PROGRAMMING**

Design documents to be published through the web (www), applying page development tools and technologies to identify solution strategies for visual communication problems.

**LIV4102 SELECT TOPICS 3**

Examine relevant branding issues by studying, analyzing and implementing them to explain the strategies that manage to convey a clear and convincing message to different audiences.

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**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

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Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

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Describe the origin of disease through causal factors to evaluate information sources on human health.

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# ART HISTORY AND CURATORSHIP

## LHC1032 CLASSIC ANTIQUITY

Identify the intrinsic values in the great architectural, sculptural, and pictorial works, as well as of the minor arts, from classic antiquity through the appreciation of its formal characteristics to relate them with the society that gave rise to them and with other manifestations of human activity.

## LHC1022 ART AND ITS DISCOURSES

Describe the peculiarities of the socio-historical-cultural context that led to the positioning of art as a specific field of objects with symbolic value by identifying the progressive transition that occurred from the Greek era to illustration to distinguish the particularities of this discourse and its adoption, that is limited to objects with similar characteristics outside the Westernized world.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LHC1012 FIRST ARTISTIC MANIFESTATIONS

Identify an overview of art in its beginnings, emphasizing the characteristics of its location and production to distinguish the bases of its specificity both at an iconographic level and in relation to its representation systems.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LHC1062 MEDIEVAL ART

Express the complex characteristics of medieval art from the

5th to the 14th centuries by analyzing artistic works at different times of this period, to compare the changes that occur in the iconography and symbology of the images following the development of religious thought, as well as the expansion and thematic variation that emerged with the birth of cities and the influence of Franciscan humanism.

## LHC1052 PRE-HISPANIC ART OF CENTRAL MEXICO

Explain the general panorama of artistic production of different cultures that settled and developed in the central area of present-day Mexico by identifying their specific characteristics to distinguish their individuality in pre-Hispanic Mexican art.

## LHC1042 CRITICAL AESTHETICS

Distinguish the socio-historical-cultural context that led some European philosophers of the 18th and 19th centuries to develop a specific reflection on art by reviewing classical philosophical works to understand that the contemporary criteria of art have their roots in previous centuries.

## LIV1072 PHOTOGRAPHY

Identify the components of a photo by using techniques and equipment to create images.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LPM1022 LANGUAGE OF CINEMA I

Identify the major milestones in the first sixty years of film history through a written analysis of a film in accordance with the evolution and use of narrative and cinematic language techniques until the late 1950s to understand the most relevant authors and their contributions to the cinematographic language.

## LHC2022 ISLAMIC AND MUDEJAR ART

Identify the essential characteristics of Islamic art as well as the appropriation of some of its main ornamental and con-

structive elements, initially by Spanish Christian art and, secondly by New Spain art through the description of emblematic works to compare the Islamic art with Mudejar, Spanish and American art.

#### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LPM2012 LANGUAGE OF CINEMA II**

Examine the major milestones of contemporary cinema from the 1960s to date by analyzing films dealing with formal and contextual aspects to identify historical, political, social and cultural factors that influence them.

#### **LHC2012 RENAISSANCE**

Describe the evolution of artistic manifestations of the 15th and 16th centuries in the historical context of the Renaissance period, through iconographic and iconological analysis to relate art to the scientific, economic, philosophical, social and spiritual environment that gave rise to it.

#### **LLI2022 LANGUAGE AND DISCOURSE THEORIES**

Examine the theories and methods of analysis of the complex processes of contemporary communication through the internal organization of texts and their relation to other semiotic forms, to interpret the different languages and discourses of socio-cultural interaction in the global world.

#### **LHC2052 16TH CENTURY NEW SPAIN ART**

Examine the first stage of the positioning and development of Mexican art, driven mainly by the clergy, identifying the general architectural characteristics, altarpieces, sculpture and painting to understand the art of post conquest era.

#### **LHC2032 PRE-HISPANIC ART OF SOUTHERN MEXICO**

Describe the artistic production of the cultures from the southern part of present-day Mexico, including Guatemala, Belize and Honduras, by identifying specific formal and plastic characteristics to identify the Mayan culture beyond its borders.

#### **LHC2072 BAROQUE Y ROCOCO**

Distinguish the different artistic and cultural themes that define the Baroque period in Europe, analyzing the importance of rhetoric through the art of persuasion, and define it

as a possible unifying element of the diverse and conflicting experiences that occurred during this period.

#### **LHC2042 FORM AND IMAGE**

Examine the artistic production of the history of art from the instrument of visual literacy to apply it to the artistic form and to the development of perceptual capabilities.

#### **LHC2062 POST-STRUCTURALISM THEORY AND THOUGHT**

Identify the main hubs of the dominant Western theoretical stages during the last decades, to understand the problems of post-structuralist thinking through the analysis the contemporary period.

#### **LHC3042 20TH CENTURY EUROPEAN ART**

Examine the artistic and sociocultural problems that characterized the beginning of modern times in Europe, through the analysis of paradigmatic works, to understand their influence on art.

#### **LHC3032 17TH AND 18TH CENTURY NEW SPAIN ART**

Analyze the main characteristics of the second stage of development of the new Spanish art produced in urban workshops and under the guidelines of the clergy, identifying paradigmatic works of different types, to compare the characteristics of art of this period in a clear break with the immediately preceding period.

#### **LHC3052 ART AND GENDER**

Analyze the relationship between art and the construction of gender identity in the Western socio-historical and cultural context, through a journey of the history of art to identify its possible contributions to gender theories.

#### **LHC3022 HISTORY AND EVOLUTION OF MUSEUMS**

Identify the different aspects related to the specific problems of the history and evolution of museums, mainly in western and Mexican areas, by analyzing different projects to understand the role they have played in the dissemination of art and culture.

#### **LHC3012 PROFESSIONAL PRACTICES I**

Understand the main problems that a culture and arts manager faces, identifying the required research tools needed to classify theory during your professional practice.

#### **LHC3102 SPANISH ART**

Examine the artistic production of Spain from the 15th century to date, identifying works and main artists of each period analyzing the ideas of mysticism, tragedy and death, assessing the impact of these ideas on Spanish construction in national art.

**LHC3082 EUROPEAN ART OF THE FIRST HALF OF THE 20TH CENTURY**

Evaluate theoretical and methodological elements, by distinguishing avant-garde contributions in the great works of modern art during the first half of the 20th century to critically compare each of the trends and movements that make it up, and to link its impact on other human activity manifestations.

**LHC3072 19TH CENTURY MEXICAN ART**

Classify the main characteristics of Mexican art of the 19th century by identifying the modalities of architecture, architecture of altarpieces, sculpture and painting to define their uniqueness of art in this period.

**LHC3062 ART CRITICISM AND CURATORSHIP**

Explain the development of the most important art criticism and curatorial practice moments, to understand an exhibition's art criticism and curatorial discourse through a detailed identification and analytic relationship.

**LEA3072 CULTURAL HERITAGE**

Analyze the social, economic and ideological usefulness of cultural heritage, both material and immaterial, by benchmarking concrete cases at a global level to assess their current importance.

**LHC3092 SELECT TOPICS 1**

Investigate different art theory problems by analyzing proposals and artistic practices relevant to understand today's art world.

**LHC4052 EUROPEAN ART OF THE SECOND HALF OF THE 20TH CENTURY**

Compare the foundations to trace the genealogy of artistic practices of the second half of the 20th century, using different theoretical frameworks and methodologies to analyze their complexities and peculiarities.

**LHC4032 MEXICAN ART OF THE FIRST HALF OF THE 20TH CENTURY**

Analyze the problems of Mexican art of the first half of the 20th century by identifying the main proposals in the search for a national art, and to understand the importance of the relationship between art and power when creating an artistic identity.

**LAP4052 ART AND DIGITAL TECHNOLOGY**

Investigate different digital artistic practices, applying the most important interactive technology methodologies based on computers, to evaluate the potential of digital technology in its creative and artistic practice.

**LHC4022 MUSEOGRAPHY**

Analyze specific issues facing museography in works that have technical and environmental requirements that respond to recent trends in art and culture, designing and setting up an exhibition to determine the complexity of a museographer's work.

**LHC4012 PROFESSIONAL PRACTICES 2**

Evaluate strategies to relate the contemporary artistic discourse by designing curatorial projects and exhibition proposals.

**LHC4042 SELECT TOPICS 2**

Analyze curatorship and cultural management topics linked to professional development, such as the museum, research, the art market, the press, cultural spaces, and those spaces and areas that are emerging today in order to apply theory to current situations.

**EIGHTH TERM****LHC4092 MEXICAN ART OF THE SECOND HALF OF THE 20TH CENTURY**

Understand the characteristics of Mexican art of the second half of the 20th century by comparing the plastic and iconographic values promoted by the nationalist school, as well as the dialogue with the international artistic proposals to distinguish the repositioning and rethinking of one's own values that Mexican art had during this period.

**LHC4072 ART AND PSYCHOANALYSIS**

Evaluate the main characteristics of the historical relations between psychoanalysis and art in the western world, through the analysis of the artistic production and creation processes, to identify the theoretical tools that an art historian currently has.

**LHC4062 ART SOCIOLOGY**

Examine the reasons why art theory appropriated theoretical sociology elements of the 20th century, thus giving birth to art sociology; analyze their creation to distinguish the complexity of artistic production and its consumption.

**LHC4102 SELECT TOPICS 3**

Analyze current problems in art history and curatorship in Mexico, identifying theoretical proposals, artistic practices and fields of professional development that are important in the country, to understand the knowledge of Mexican art.

**LHC4082 THEORY OF CONTEMPORARY ART**

Understand the different theoretical frameworks to compose a critical analysis of contemporary art, by identifying the re-

relationship with the economic, social and political environment in which it was created.

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#### ART0022 ART AND CULTURE IN THE AMERICAS

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### ART0012 ART, HISTORY AND CULTURE

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

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Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

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Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

### GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

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Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

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Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

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Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

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Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

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Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

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Describe the origin of disease through causal factors to evaluate information sources on human health.

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# LANGUAGE STUDIES

## **LIO1012 LANGUAGE STUDIES**

Understand the processes of analysis of linguistic data using the appropriate theoretical linguistics terminology to describe different languages.

## **LIO1022 HISTORY AND STUDY OF THE SPANISH LANGUAGE**

Identify the grammatical characteristics of Spanish, through its historical and social development, to explain its evolution and creation.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LIO1032 ACQUISITION OF THE FIRST LANGUAGE**

Identify the psycho-cognitive processes of first language development, using the appropriate theories to describe the language of children in different stages of life.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context

## **LIO1052 STUDY OF TRANSLATION**

Identify translation methods, techniques and strategies following linguistic, social and cultural aspects to translate short texts.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LPD1042 LEARNING AND TEACHING THEORIES**

Distinguish between the main learning and teaching theories by identifying their fundamentals to analyze and design teaching situations in the classroom.

## **LIO1042 THIRD LANGUAGE 1**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

## **LIO2022 ACQUISITION OF THE SECOND LANGUAGE**

Identify the factors involved in acquiring a second language by examining language learning environments to understand the linguistic profile.

## **LAD2012 ENTREPRENEURIAL CULTURE**

Identify business opportunities by analyzing the creative process and competitive environment characteristics to develop conditions that lead to entrepreneurship.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LIO2032 GRAMMAR THEORY**

Identify rules, principles and restrictions that characterize human language to apply them in the description of linguistic phenomena through the use of different grammatical models.

## **LIO2012 THIRD LANGUAGE 2**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

**LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

**LIO2062 CONTRASTIVE GRAMMAR**

Compare conceptual and operational aspects Spanish and English grammar by performing linguistic analysis to apply it when teaching and translating languages.

**LIO2082 LANGUAGE AND COMPUTERS**

Apply the concepts and techniques of studying the interface between language and computers, researching texts collections and linguistic data for their analysis.

**LIO2072 METHODOLOGY TO TEACH LANGUAGES**

Understand the different methods and techniques to teach languages, comparing teaching processes to identify how languages are learned.

**LIO2042 SOCIOLINGUISTICS**

Describe the different types of contact between language and society, using sociolinguistic analysis tools to understand the implications of using language in different social processes.

**LIO2052 THIRD LANGUAGE 3**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

**LPD3112 DISTANCE LEARNING**

Select appropriate methods and strategies to develop online and distance learning experiences, based on educational theory, teaching and learning principles, organizational structure and national educational policy.

**LIO3042 SPECIALIZED LEXICONS**

Apply lexicographic and terminological coding techniques and concepts to create glossaries, vocabularies and translation memories, processing and analyzing lexical data sources.

**LIO3032 PROFESSIONAL PRACTICES 1**

Apply the methods and techniques to create solutions to language teaching problems, collaborating as a team with experts in professional or research situations.

**LIO3022 PRAGMATICS**

Understand the theoretical pragmatics frameworks through linguistic analysis of texts to use them teaching and translating languages.

**LRM3032 MULTICULTURAL THEORY**

Explain the theoretical models associated with multiculturalism, analyzing their implications and applying them in conflicts derived from cultural differences.

**LIO3012 THIRD LANGUAGE 4**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

**LIO3072 BILINGUALISM**

Analyze the mechanisms and components of bilingualism to explain arguments for and against bilingual education by assessing the needs of each particular context.

**LRI3092 NORTH AMERICAN STUDIES**

Analyze the actors, processes, institutions and political, economic and social dynamics in North America, examining theories and concepts to identify the characteristics and problems of regional interaction, as well as their influence on Mexican foreign policy.

**LRI3062 ASIAN STUDIES**

Analyze the main economic, political, social and security variables in national and regional processes of the Asian continent, understanding influential factors to explain their contemporary situation and their impact at a global level.

**LIO3082 SELECT TOPICS 1**

Analyze language teaching topics by examining different teaching methods and techniques to apply them to any educational context.

**LIO3062 THIRD LANGUAGE 5**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

**LIO3052 ORAL TRANSLATION**

Classify interpretation methods and techniques to develop oral translations of short texts, applying different modalities, such as sight translation, consecutive unilateral and bilateral interpretation and simultaneous interpretation.

**LRI4052 EUROPEAN UNION STUDIES**

Analyze the structure, institutions, dynamics and decision-making of the European Union, examining treaties and theories to identify the region's main economic, political, social and security processes and their global environment.

**LIO4022 EVALUATION IN THE TEACHING OF LANGUAGES**

Analyze theories and evaluation models of the teaching-learning process of languages by applying different types of evaluation to design adequate, efficient and reliable assessment tools.

**LIO4032 PROFESSIONAL PRACTICES 2**

Apply the appropriate methods and techniques to develop solutions to translation and interpretation problems by identifying needs as part of a team of experts in professional or research situations.

**LIO4042 SELECT TOPICS 2**

Analyze translation and interpretation topics, identifying methods and techniques, as well as standardized evaluation criteria that can be applied to any intercultural context.

**LIO4012 THIRD LANGUAGE 6**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

**LIO4052 WRITTEN TRANSLATION**

Translate diverse texts, editing and reviewing them to produce similar text to the original for a new linguistic and cultural audience.

**LIO4062 ANALYSIS OF LINGUISTIC DISCOURSE**

Evaluate discourse analysis methods by linguistically examining texts to apply them in when teaching and translating languages.

**LIO4072 CURRICULAR DEVELOPMENT IN THE TEACHING OF LANGUAGES**

Understand the dimensions, stages and sources of a language teaching curriculum to design a language course.

**LIO4092 RESEARCH IN APPLIED LINGUISTICS**

Compare applied linguistics research practices, using methods and tools to develop hypotheses for linguistics problems.

**LIO4082 TRANSLATION PRACTICES**

Translate texts, applying specialized translation contexts, to create a text that is similar to the original for a new linguistic and cultural audience.

**LIO4102 SELECT TOPICS 3**

Examine linguistics topics by analyzing methods and techniques to apply them to any professional context.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

*\*UDLAP's General Education (GenEd) courses.*

# LITERATURE

## LLI022 FUNDAMENTALS OF LITERARY WRITING

Identify the literary discourse theoretical concepts analyzing contemporary literature to understand the meaning of literary writing.

## LTE1032 HISTORY OF THEATER UP TO THE 19TH CENTURY

Identify the main theater trends, through bibliographical and audiovisual analysis of theater, from Greece to the 20th century, to understand the cognitive bases of drama and stage.

## LIO1022 HISTORY AND STUDY OF THE SPANISH LANGUAGE

Identify the grammatical characteristics of Spanish, through its historical and social development, to explain its evolution and creation.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LLI1012 PRE-HISPANIC LITERATURE

Identify the different literary manifestations of pre-Hispanic cultures, comparing the specific conditions of their production to understand the characteristics of pre-Hispanic linguistics.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LLI1042 HISTORY OF LITERARY THEORY

Understand the most important theoretical and critical Western literature texts that have been written, analyzing the representative works to relate the critical texts applying the literary theories studied in class.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LLI1052 MEDIEVAL SPANISH LITERATURE

Analyze medieval Castilian literature through the historiography, epic, lyrical and early Castilian theater to understand its influence in the later literature.

## LLI1032 TEXTS OF THE CONQUEST

Understand the particularities of literature during the conquest of America, through a hegemonic perspective to identify the fundamental texts about the conquest of America.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LPM2022 SCRIPT WRITING

Analyze film scripts by identifying its elements to write a short film and segment a feature film.

## LEX0132 FOREIGN LANGUAGE III \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LLI2012 LITERATURE OF THE COLONIAL ERA

Identify the main features of colonial Spanish American literature up to the 18th century, studying the most representative texts to analyze the cultural heterogeneity of this period in America.

## LLI2032 SPANISH LITERATURE OF THE GOLDEN AGE

Construct an overview of the genres and authors of the golden age by comparing them with other eras, associating them with their historical, social and cultural context.

## LLI2022 LANGUAGE AND DISCOURSE THEORIES

Examine the theories and methods of analysis of the complex processes of contemporary communication through the in-

ternal organization of texts and their relation to other semi-otic forms, to interpret the different languages and discourses of socio-cultural interaction in the global world.

#### **LTE2082 DRAMA**

Identify the main features of theater by understanding different contemporary dramatic theories to write and analyze plays.

#### **LLI2072 CERVANTES STUDIES**

Examine the work of Miguel de Cervantes through the analysis of his masterpieces to establish the relationship with the Spanish Golden Age and Hispanic culture in general.

#### **LLI2052 SPANISH AMERICAN LITERATURE OF THE 19TH CENTURY**

Understand the production and reception of 19th century Spanish American literary production (poetry, essay, novel, letters and notices, short story) constantly contextualization them to relate the development of the illustrated project in the Spanish American literature.

#### **LLI2042 LITERARY MODELS - NARRATIVE**

Identify structural and thematic distinctions between the epic, the novel and the short story by comparing the various quantitative, qualitative and narrative enunciation elements that make up a story to analyze paradigmatic works ranging from the epic to stories to the most recent novels of the western world. In their printed and audiovisual representations.

#### **LRP3092 CRITICISM THEORY AND CULTURAL STUDIES**

Critically analyze the patterns, structures and social processes that influence the behavior of individuals as information consumers using content dissemination systems to analyze contemporary media.

#### **LLI2062 LITERARY THEORIES OF THE 20TH CENTURY**

Classify the concepts and models of 20th century literary theory, analyzing works to identify the characteristics of the literary works of that period.

#### **LHC3052 ART AND GENDER**

Analyze the relationship between art and the construction of gender identity in the Western socio-historical and cultural context, through a journey of the history of art to identify its possible contributions to gender theories.

#### **LLI3032 NARRATIVE WRITING**

Identify the narrative genres of contemporary writing through their technical and stylistic aspects to prepare literary texts.

#### **LLI3012 ILLUSTRATION AND MODERNITY IN SPANISH LITERATURE**

Compare the trajectory of 18th and 19th century Spanish literature by analyzing the great periods or trends - Late Baroque, Enlightenment, Romanticism, Realism and Modernity to exemplify these categories and relate them to the contemporary literature processes in Spanish America.

#### **LLI3042 LITERARY MODELS - POETRY**

Identify the essential elements of poetry by analyzing its styles from the Renaissance to postmodernity, to correctly interpret important poems of the Western world.

#### **LLI3022 PROFESSIONAL PRACTICES 1**

Apply the theoretical and practical knowledge acquired in the different classes through cultural professional practices, to compare the theory with the professional work.

#### **LRI3052 CONTEMPORARY LATIN AMERICA**

Analyze recent history and politics of Latin American countries, as well as their contemporary problems, through a conceptual review of the most important ideas and cases of the dominant countries, to identify this region in the current global environment and to understand some of the academic trends.

#### **LLI3082 LATIN AMERICAN CRITICISM AND HISTORIOGRAPHY**

Understand the critical and historiographical thought of Latin America from the 19th and 20th centuries, analyzing the critical texts and their most relevant authors, in order to relate theoretical conceptualizations.

#### **LLI3062 MODERN EUROPEAN LITERATURE**

Analyze the main European prose and poems from the 18th to the 20th centuries, analyzing works to identify the relationship between this period of European literature and its corresponding Latin American period.

#### **LLI3052 MEXICAN LITERATURE OF THE 19TH CENTURY**

Understand the themes and problems of Mexican literature from the pre-independence years to modernism by analyzing its trajectory to establish its function within a cultural process in search of national identity.

#### **LLI3092 LITERARY MODELS - ESSAY**

Identify essay theories and main characteristics of the genre by analyzing the texts with the most representative authors to interpret texts (European, Hispanic American and American) in light of essay theories.

**LLI3072 SELECT TOPICS 1**

Examine topics around a theoretical proposal of the 21st century through the pertinent and critical relationship between Latin American and Western literary theory to explain world thought in a broader scope.

**LLI4062 LITERARY WRITING – POETRY**

Interpret poems through a framework of knowledge of the current lines on the creation of lyric texts to develop creative skills that help to consolidate a style when writing poetry.

**LLI4032 AMERICAN LITERATURE FROM THE 19TH TO THE 21ST CENTURY**

Understand American literature by analyzing works to compare their processes with those of literature of the rest of America.

**LLI4022 MODERN MEXICAN LITERATURE**

Evaluate the Mexican literature corpus of the first half of the 20th century under the concept of literary autonomy through a transversal reading of texts to identify their importance and function in the creation of modern Mexican culture.

**LLI4052 SPANISH AMERICAN NARRATIVE FROM THE 20TH CENTURY**

Identify the Latin America narrative by analyzing the works produced from the abandonment of regionalism to the post-boom, to socially and politically evaluate the emergence as well and development of the Latin American Boom.

**LLI4012 PROFESSIONAL PRACTICES 2**

Compare professional performance with theoretical bases, through a professional practice, in which you will recommend improvements in a cultural institution or company.

**LLI4042 SELECT TOPICS 2**

Examine current relevant issues of a 21st century leading author through their relevant and critical relationship with other relevant Western and Latin American literature works to gain a broader view of world literature.

**LLI4072 BRAZILIAN LITERARY FROM THE 19TH TO THE 21ST CENTURY**

Understand Brazilian literature by analyzing representative works to pertinently and critically relate this literature with that of the rest of Latin America.

**LLI4092 CONTEMPORARY MEXICAN LITERATURE**

Explain the changes in the Mexican literary culture through the analysis of the end of the national paradigm and the incorporation of new agents and practices from the sixties, to

establish a basic panorama to interpret the cultural conditions of the present.

**LLI4102 SPANISH AMERICAN POETRY FROM THE 20TH CENTURY**

Analyze the processes of poetic creation in the Hispanic-American context of the 20th century, through the study of modernism to current poetry, to build a panoramic view of the texts and authors of lyrical poetry and the Spanish language.

**LLI4112 CRITICISM AND ESSAY WORKSHOP**

Produce essay-critical texts by exploring different models and strategies, from literary essay to critical review, to apply your knowledge and skills and to question one's own discursive production.

**LLI4082 SELECT TOPICS 3**

Examine new current literary of a country or region analyzing its relevant and critical relationship with the rest of Western Latin American literature, to establish a broader view of world literature.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# MUSIC

## LMU1022 INSTRUMENT 1

Identify the basic characteristics of musical performance of an instrument, using note reading models and basic rhythms to apply them to a repertoire.

## LMU1012 POPULAR MUSIC

Understand 1960s American, Latin American and English music to expand the field of musical study, identifying popular culture elements.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LMU1042 BAROQUE AND CLASSICAL MUSIC

Describe the development of the baroque and classical repertoire using tonal composition models and forms derived from baroque dance to understand genres and composers from the 17th to the 18th centuries.

## INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## LMU1032 MUSIC THEORY

Produce notes, keys, key signature, triads, inversions, rhythms and metrics, using small phrases in a four-voice choral texture to relate the basic structures of music to their interpretation and execution.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LMU1072 TONAL HARMONY I

Identify classical music repertoire rules, by performing musical exercises and choir constructions to understand functional tonality musical tools.

## LMU1082 AUDITORY TRAINING I

Identify melodies, intervals and rhythms using basic metric and tonal models to write and sing simple tonal melodies.

## LMU1062 INSTRUMENT 2

Express the basic characteristics of musical performance of an instrument using different musical styles and simple basic forms for a second basic level repertoire.

## LMU1052 MUSIC IN THE 19TH CENTURY

Classify the development of music from Beethoven to Debussy using tonal and chromatic composition models to understand the musical structures used by 19th century classical composers.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LMU2032 TONAL HARMONY II

Understand chords, inversions, non-harmonic tones, modulations and cadences, applying the writing of harmonic progressions to four voices and in the construction of a short piece that modulates a close tonality and returns to the main tonality, in order to develop the ability to read, analyze and write Western music.

## LMU2042 AUDITORY TRAINING II

Develop rhythmic and rhythmic-melodic exercises understanding subdivisions and syncope in simple and compound measures to express basic tonal melodies. Identify harmonic progressions using major and minor syncope triads to hear basic tonal progressions.

## ESPO022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LMU2012 PRE-TONAL STRUCTURES

Explain the development of the repertoire prior to tonality using rhythmic notation, modal composition and the rela-

tionship between music and text to understand structures, genres and composers from the 10th to 17th centuries.

### **LMU2022 INSTRUMENT 3**

Understand the formulas of a coherent execution by using formal, historical and stylistic schemes and techniques to apply them to a first intermediate level repertoire.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LMU2092 COUNTERPOINT**

Interpret analysis and creation exercises applying harmonic and formal resources of Palestrina to J.S. Bach music, in order to develop both horizontal-melodic and vertical-harmonic musical skills.

### **LMU2062 CHOIR I**

Identify the essential aspects of choir performance, using rhythmic and musical engagement to work with other members of the choir and interpret repertoires of various musical styles at the basic level.

### **LMU2052 MUSICAL DIRECTION**

Apply basic knowledge of musical direction, in order to perform musically in front of an ensemble with mastering artistic interpretation, analyzing theoretical musical ideas and exercising leadership and cultural management skills.

### **LMU2102 AUDITORY TRAINING III**

Understand rhythmic and rhythmic-melodic exercises by interpreting tonal melodies with some chromatic tones and modulations to close tones and irregular rhythms to relate them to hearing melodies and intermediate tonal progressions.

### **LMU2082 INSTRUMENT 4**

Understand coherent execution formulas through technical, formal, historical and stylistic schemes to apply them to repertoire of the second intermediate level.

### **LMU2072 MUSIC TECHNOLOGY**

Prepare compositions, arrangements, productions and reproductions of sound using computer tools in order to understand music manipulation techniques.

### **LI01042 THIRD LANGUAGE 1**

Express known and/or new information in an oral and written manner, using appropriate vocabulary and structures to communicate with native speakers in everyday and academic situations.

### **LMU3042 CHROMATIC HARMONY I**

Apply chromatic harmony knowledge in the construction of a short piece, to develop solutions to problems of daily musical life by analyzing the chromatic system of classical music.

### **LMU3012 CHOIR II**

Classify the essential aspects of choir performance using rhythmic and musical engagement to work with other members of the choir and interpret different musical style repertoires at the intermediate level.

### **LMU3052 AUDITORY TRAINING IV**

Apply auditory memory to tonal structures using some chromatic tones, modulations to close tones and irregular rhythms to interpret rhythmic exercises and tonal rhythmic-melodic at an advanced level.

### **LMU3032 INSTRUMENT 5**

Analyze the formulas of a coherent execution that elevates the public's interest through technical, formal, historical, harmonic and stylistic schemes to apply them to a repertoire of the third intermediate level.

### **LMU3022 PROFESSIONAL PRACTICES 1**

Interpret chamber music through planning, execution and production to apply the theoretical structure to the actual practice.

### **LMU3102 CHROMATIC HARMONY II**

Analyze representative works of the 20th and 21st centuries to create small works, by applying the techniques of this repertoire.

### **LTE3072 CORPORALITY FOR THE STAGE**

Relate the somatic, theoretical and experiential perspectives of theater to develop an actor's corporal potential on stage through movement, sensation, imagination, reflection, touch, and action exercises.

### **LMU3112 AUDITORY TRAINING V**

Analyze complex melodies using non-tonal models to write and sing exercises based on repertoires of the late twentieth and early twenty-first century.

**LMU3092 INSTRUMENT 6**

Identify analysis, memorization and execution models of the fourth intermediate level through musical interpretation to develop a coherent execution that increases public interest.

**LMU3062 MUSIC IN THE 20TH AND 21ST CENTURIES**

Evaluate the development of music from 1900 using post-tone composition models to apply them to the repertoire analysis of the 20th and 21st century.

**LMU3082 CHAMBER MUSIC I**

Interpret chamber music using assembly techniques to develop musical sets of two or three instrumentalists.

**LMU3072 MUSIC AND SCENIC ARTS**

Relate the processes and styles of interdisciplinary genres, distinguishing the stylistic factors that determine eras and social environments, to apply different ways of thinking both verbally and in writing.

**LDA4012 PERFORMANCE STUDIES**

Analyze performance by relating the historical, cultural and philosophical contexts of different study areas, to create performance projects.

**LMU4062 FUNDAMENTALS OF MUSICAL COMPOSITION**

Produce music for instruments through small ensembles and vocal groups, representative of the Western musical repertoire of the 21st century to better distinguish the processes of artistic creation.

**LMU4052 HISTORY OF JAZZ**

Analyze jazz works of the 20th and 21st centuries, identifying similarities and differences between historical jazz periods develop knowledge of a repertoire different from classical music.

**LMU4042 INSTRUMENT 7**

Develop a repertoire of the first advanced level through formal, harmonic, historical and stylistic technical schemes to play a coherently and increase a public's interest.

**LMU4032 CHAMBER MUSIC II**

Interpret chamber music using assembly techniques to play musical ensembles of four instrumentalists.

**LMU4022 PROFESSIONAL PRACTICES 2**

Produce musical works applying theoretical-practical models to individual and group presentations to distinguish musical structures.

**LMU4012 SELECT TOPICS 1**

Examine current musical interpretation issues by evaluating models of historical and contemporary interpretation to identify the elements of a justified, coherent and purposeful execution.

**LAP4062 ART AND SOCIAL SPACE**

Relate the different meanings of social space with artistic practices of different natures to create projects that can be adequately established and contribute to the different social contexts by applying concrete strategies.

**LMU4112 INSTRUMENT 8**

Be professional in musical interpretation, applying historical and theoretical knowledge to interpret a responsible, informed and striking work.

**LMU4072 MUSIC IN MEXICO**

Evaluate the development of music in Mexico analyzing tonal and post-tonal composition models to understand the different currents that characterize the musical repertoire created in Mexico or by Mexicans.

**LMU4082 CHAMBER MUSIC III**

Interpret chamber music by applying assembly techniques to perform in different contexts.

**LMU4122 ORCHESTRATION**

Evaluate the particular characteristics of each orchestral instrument, analyzing and developing arrangements based on Western musical repertory, in order to analyze the elements of a symphony orchestra and its subgroups.

**LMU4092 SELECT TOPICS 2**

Analyze music theory topics through critical thinking and analysis of musical works to identify the elements of creation and writing of national and international music.

**LMU4102 SELECT TOPICS 3**

Examine history of music topics using critical historiography to identify new approaches and apply them to the analysis and interpretation of national and international music.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

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# THEATER

## **LTE1032 HISTORY OF THEATER UP TO THE 19TH CENTURY**

Identify the main theater trends, through bibliographical and audiovisual analysis of theater, from Greece to the 20th century, to understand the cognitive bases of drama and stage.

## **LTE1012 ACTING IMPROVISATION**

Understand acting improvisation techniques and their relevance through basic exercises to identify the main characteristics of a theater actor's stage performance.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LTE1022 PRINCIPLES OF ACTING TRAINING**

Identify actor training principles by evaluating and practicing basic breathing, stretching, vocal exploration, relaxation and neutrality exercises to understand the characteristics of optimal acting development.

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LTE1042 ACTING I**

Identify Stanislavski system's acting techniques, by practicing basic exercises to apply them in acting and to create a dramatic character.

## **ESP0012 ACADEMIC REASONING**

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context

## **LTE1052 MUSICAL AND RHYTHMIC TRAINING**

Identify the map of sounds, rhythms and notes, by studying music theory to apply the fundamentals of reading notes and rhythms to an elemental song repertoire.

## **LTE1062 HISTORY OF THEATER FROM THE 20TH TO THE 21ST CENTURY**

Compare the differences that exist in contemporary theater, analyzing sources to identify theater creation processes and make stage proposals

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LPM1022 LANGUAGE OF CINEMA I**

Identify the major milestones in the first sixty years of film history through a written analysis of a film in accordance with the evolution and use of narrative and cinematic language techniques until the late 1950s to understand the most relevant authors and their contributions to the cinematographic language.

## **LTE2012 ACTING 2**

Develop the Stanislavskian acting method through physical, emotional and intellectual tools to understand its elements in theatrical exercises.

## **ESP0022 ACADEMIC WRITING**

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LTE2042 ANALYSIS METHODS OF THEATER TEXT**

Understand the critical methodologies and theories of the theater through the exhaustive analysis of texts to understand the creative process' characteristics.

## **LTE2032 MEXICAN THEATER**

Understand the main themes of Mexican theatrical creation

in the 20th and 21st centuries, reviewing productions and written texts to identify the artistic and cultural environment of Mexico and Latin America

#### **LTE2022 VOICE FOR ACTORS**

Produce vibrations by applying the theoretical, technical and sensitive knowledge of the respiratory and vocal apparatus to develop an adequate vocal technique.

#### **LTE2062 ACTING 3**

Create a stage character through displacement and exploration spatial exercises to develop various acting tools.

#### **LTE2082 DRAMA**

Identify the main features of theater by understanding different contemporary dramatic theories to write and analyze plays.

#### **LDA2082 DRAMATURGY OF THE BODY**

Identify your drama potential, both in dance criticism and in choreography, to analyze the construction, significance and character in works based on movement. This will be done through choreographic and stage studies that are based on the language of movement.

#### **LTE2052 SCENIC PRACTICES I**

Create a character and its relation to dramatic situations, actions and emotional motivations, by applying acting methodologies and exercises, to act on the stage.

#### **LPM3012 AUDIOVISUAL PRODUCTION TECHNIQUES**

Identify the elements of audiovisual messages by creating creative, technical and aesthetic works using different tools and technical resources to express and broadcast audiovisual messages in an effective way and that comply with the minimum technical and aesthetic standards when shown or broadcast.

#### **LTE3052 ACTING 4**

Develop a creative corporal work, through corporal and vocal exercises to understand scenic language. Build a character and its relationship to dramatic situations and the weaving of actions and emotional motivations through exercises to understand performance elements. Design a space by exploration and scenic movement to identify the staging requirements.

#### **LTE3032 CONTEMPORARY SCENIC TRENDS**

Classify contemporary theater trends by researching the main themes and proposals to analyze the new artistic proposals of theatrical art and its most current trends in the world.

#### **LTE3062 SCENE, THEORY AND CRITICISM**

Develop an argumentative and critical skills to express, with clarity and depth, ideas related to the main themes of the course, analyzing theories, to write theatrical criticism that can be published in local media.

#### **LTE3042 SCENIC PRACTICES II**

Understand the staging process through the systematic exercise of tasks and scenic processes, to organize the progressive tasks of staging

#### **LTE3012 PROFESSIONAL PRACTICES 1**

Combine the theoretical-practical and creative concepts required to develop a professional theater practice through a project that includes research, creation, presentation and marketing.

#### **LPM3032 RADIO PRODUCTION**

Produce auditory messages with communicative richness, through the intentional use of the expressive resources of radio and the correct operation of audio recording and reproduction digital equipment to explain strategic proposals within the radio world.

#### **LTE3022 CHARACTER CONSTRUCTION WORKSHOP**

Create dramatic characters, including the preparation of their costumes, masks, makeup, characterization and special effects to develop staging, performances and film projects.

#### **LTE3112 ACTING FOR THE MEDIA**

Categorize the main characteristics that make up media performance, studying different actors' techniques to understand the techniques of camera performance.

#### **LTE3072 CORPORALITY FOR THE STAGE**

Relate the somatic, theoretical and experiential perspectives of theater to develop an actor's corporal potential on stage through movement, sensation, imagination, reflection, touch, and action exercises.

#### **LTE3092 SCENIC DIRECTION 1**

Direct a theatrical assembly applying scenic art's tools and

techniques to understand the conceptualization and importance of theater direction performance.

#### **LTE3082 SCENIC IMAGE**

Relate the concepts of stage image by developing the scenic space and creative exercises to plan the elements of the scenic image.

#### **LMU3072 MUSIC AND SCENIC ARTS**

Relate the processes and styles of interdisciplinary genres, distinguishing the stylistic factors that determine eras and social environments, to apply different ways of thinking both verbally and in writing.

#### **LTE3102 SELECT TOPICS 1**

Examine language topics that are complementary to theater, analyzing the conceptual and technical aspects of theater to relate scenic practice to such languages.

#### **LTE4042 SCENIC DIRECTION 2**

Design a theatrical assembly using conceptual and practical elements of the stage to understand theater direction techniques.

#### **LTE4012 COLLECTIVE THEATER EXPERIENCE**

Establish a dynamic-collective work to develop a group theatrical language applying fundamental contemporary methodologies and practices.

#### **LTE4022 ALTERNATIVE SCENIC LANGUAGES 1**

Compare the characteristics of Avant-Garde theater, analyzing the historical events of this movement to develop critical arguments linked to other 20th century movements.

#### **LTE4032 PROFESSIONAL PRACTICES 2**

Evaluate professional performance, through the knowledge and skills acquired during your studies, to develop scenes.

#### **LTE4052 SELECT TOPICS 2**

Examine acting training issues comparing dramatic circumstances with the fabric of actions and specific physical, emotional and intellectual motivations of a play to create a character.

#### **LTE4062 ALTERNATIVE SCENIC LANGUAGES**

Compare the characteristics of postmodern theater, conceptualism, and political and cultural resistance through critical analysis to examine theater trends.

#### **LTE4072 THEATER PORTFOLIO AND JOB MARKET**

Identify the needs of working in the theater by studying different practical elements to develop professional theatrical projects

#### **LTE4082 STAGING**

Design a pre-professional short film, developing scenic trends to relate the theoretical and practical concepts with reality.

#### **LTE4092 STAGING WORKSHOP**

Develop a pre-professional staging, using theater analysis methods to apply them to staging in professional cultural institutions.

#### **LTE4102 SELECT TOPICS 3**

Understand current theater topics, identifying the elements involved in staging, acting, character development, stage management, scenic image design and theatrical production.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect indi-

vidual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*



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# ACADEMIC PROGRAMS

# SCHOOL OF SCIENCE

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# ACTUARIAL SCIENCES

## **LIS1012 ALGORITHMS AND PROGRAMMING**

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1062 SUPERIOR ALGEBRA**

Establish solid mathematical foundations, proving and using math properties to model the phenomena of the applied sciences.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial

statements of service and commercial companies to control results.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **MAT1042 ANALYTIC GEOMETRY**

Apply the conics and basic math concepts, using their algebraic properties with a vectorial approach, to model relevant indicators.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations

## **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## **ECO2012 MACROECONOMIC ENVIRONMENT**

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LAT2012 STOCHASTIC MODELS I**

Apply probability techniques through different univariate models to calculate probabilities and expected values to real problems that contribute in decision-making.

**LAT2022 MATRIX THEORY**

Apply vectorial spaces, matrix theories and lineal transformations to solve real problems and model diverse phenomena, applying matrix theory in your major by using technological resources.

**LAT2032 THEORY OF INTEREST I**

Analyze problems that involve the value of money through time, using math tools and financial concepts to develop solutions to practical and theoretical financial problems.

**MAT2042 MATHEMATICAL ANALYSIS I**

Apply the derivative and integral of functions of a variable to solve engineering, finance, and the science problems using the multipliers method to develop solutions to optimization problems.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LAT2042 ACTUARIAL PROGRAMMING TOOLS**

Design computer applications by using Excel, VBA and SQL to develop solutions to actuarial problems.

**LAT2062 STOCHASTIC MODELS II**

Apply probability techniques, using different multivariate models, to calculate probabilities and expected values to real problems that contribute to decision-making.

**LAT2072 THEORY OF INTEREST II**

Analyze problems that involve continuous annuities and/or non-level payments, using math tools and financial concepts to recommend solutions to practical and theoretical financial problems; apply the methods used to evaluate investment projects.

**LAT2052 THEORY OF INSURANCE**

Identify the main aspects of life and damage insurance, and insurance in general by analyzing insurance policies, their participants and the role that each one carries out to understand the most common practices in the insurance business.

**MAT3012 MATHEMATICAL ANALYSIS II**

Apply line integrals and multiple integrals of variable func-

tions, modeling the infinite sums of their indicators to develop solutions to physics, finance and science problems.

**LAT3032 ACTUARIAL MATH FOR LIFE INSURANCE**

Apply basic life insurance models to calculate premiums and mathematical reserves, to describe the products offered by the insurance industry.

**LAT3012 INFERENCE METHODS I**

Apply different methodologies to estimate interest parameters that contribute to decision-making in different actuarial science areas, developing different descriptive statistics, point estimate and interval estimation methods.

**LAT3022 STOCHASTIC MODELS III**

Apply probability techniques and stochastic processes to develop probability and stochastic process models to calculate probabilities and expected values in real problems, thus contributing to decision-making

**LAT3042 PROFESSIONAL PRACTICES I**

Apply the knowledge acquired during your actuarial sciences studies in professional environments, using the theory, methodology and techniques you learned to analyze, diagnose, plan, evaluate and take part in solving problems and situations in your area.

**LAT3082 MATHEMATICAL ANALYSIS III**

Identify the properties of a Lebesgue integral, analyzing the theories of measurable sets, measures and measurable functions to differentiate a more general and flexible integral that replaces the Riemann integral.

**LAT3072 DEMOGRAPHICS**

Evaluate the demographic phenomena, applying models, techniques, math and actuarial math to identify a population's growth processes.

**LEC3092 ECONOMETRICS I**

Use statistical tools from specialized computer packages and databases to quantitatively analyze economic phenomena

**LAT3062 INFERENCE METHODS II**

Apply diverse statistical methodologies by developing different parametric and non-parametric test hypotheses to define the parameters of a population, thus contributing to decision-making in actuarial sciences.

**LAT3052 INVESTMENT PORTFOLIOS**

Describe the most important financial products, shares and bonds, using mathematical tools and financial concepts to

build investment portfolios that consider the risk-performance relationship.

#### **LI12042 OPTIMIZATION THEORY AND TECHNIQUES**

Analyze practical problems by applying mathematical programming models and methods to develop optimal solutions to make decisions.

#### **LEC4032 ECONOMETRICS II**

Analyze statistical tools using time series databases to differentiate economic and financial phenomena.

#### **LAT4042 PROFESSIONAL PRACTICES 2**

Evaluate problems and situations of your major in real work situations, applying theories, methodologies and techniques to create a link between theory and practice.

#### **LAT4012 DERIVATIVE PRODUCTS**

Describe how the derivatives markets and financial products negotiated in such markets work; apply the methods used in valuation of derivative products using mathematical tools and financial concepts to identify the risks involved.

#### **LAT4032 SELECT TOPICS 1**

Analyze vanguard topics in statistics and actuarial simulation by applying methodologies to identify statistical concepts and create pseudo-random numbers.

#### **LAT4022 THEORY OF RISK**

Apply actuarial models for loss in the non-life insurance areas, using the necessary math tools to analyze the calculation of premiums and reserves in insurance companies.

#### **LAT4062 ACTUARIAL RISK MANAGEMENT**

Apply procedures and techniques used by the financial industry by identifying, measuring and controlling the risks, to communicate them to protect a company's finances.

#### **LAT4052 ADVANCED OPTIMIZATION**

Analyze practical application problems by applying mixed integer programming methods to develop solutions that support decision-making processes when an optimal alternative is needed for a specific objective.

#### **LAT4072 SOCIAL SECURITY AND PENSIONS**

Identify the benefits covered by social security in different parts of the world, analyzing the theories and tools to compare the different pension systems available.

#### **LAT4082 SELECT TOPICS 2**

Examine finance topics by analyzing theories to apply to investment and funds in actuarial sciences.

#### **LAT4092 SELECT TOPICS 3**

Examine insurance topics, applying actuarial models to analyze the characteristics of financial compensation.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

## GENERAL STUDIES ELECTIVE IN HUMANITIES \*

### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# BIOLOGY

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **LB11022 BIOLOGY**

Describe the structure, organization and interactions between the components of living beings, applying different learning methods that guide the integration of key concepts to understand the properties that characterize living systems.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change

## **LB11012 BIOLOGY LAB**

Analyze vital processes at different levels of biological organization by using scientific research methods and techniques to apply, experimentally, the acquired theoretical concepts of composition, structure and functioning of living beings.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds

## **QUI2012 BIOCHEMISTRY I**

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing spe-

cialized information and applying academic and scientific standards to disseminate knowledge.

#### **LB12042 MYCOLOGY LAB**

Classify the studied organisms by mycology, observing their cellular characteristics and reproductive structures to determine their place in the general scheme of biological classification. Classify the studied organisms by mycology, using the techniques of collection, cultivation, tincture and identification to apply the basic concepts of biological sciences to these organisms.

#### **LB12022 PROTISTS AND ALGAE LAB**

Analyze the ecological function of algae and protists, applying field study techniques to establish the importance of these organisms. Classify the groups of algae and protists, applying cultivation and tincture methods to categorize them in biological classification. Distinguish algae and protists by elaborating dichotomous keys to apply formal methods of biological identification.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LB12032 MYCOLOGY**

Classify the studied organisms by mycology, establishing their taxonomic position and evolutionary origin to determine their place in the general system of biological diversity. Classify the studied organisms by mycology, describing their cellular characteristics and life cycles to interpret these attributes in the general context of biological sciences. Explain the groups of organisms to be studied by mycology, analyzing their ecologic, medical and economic importance to develop solutions to problems in these areas.

#### **LB12012 PROTISTS AND ALGAE**

Categorize groups of eukaryote organisms, known as algae and protists, describing their evolutionary origin to identify their general location in biological classification. Describe algae and protists groups, listing their cellular characteristics and life cycles to apply basic biological concepts to these organisms. Identify the relevance of algae and protists by analyzing their ecological, economic, and medical importance to develop solutions to relevant problems.

#### **LB12072 CELLULAR BIOLOGY**

Identify the basic structures of the cell, reviewing its components and interrelation to discover and distinguish its function. Discover the relationship of the different organelles, their functions, and their structure at a cellular and organism

level and relate it to the state of health or pathology of the organism, integrating the information in function of each one in a cellular context.

#### **QUI2062 BIOCHEMISTRY II**

Identify the fundamentals of biochemistry by reviewing the general metabolism of living beings to interpret their interrelations with regulation, growth and differentiation at the cellular level. Describe the relationships of metabolism and its deficiencies by identifying detectable metabolic intermediaries for clinical interpretation

#### **MAT2062 INFERENCE STATISTICS**

Apply various statistical techniques using different statistical inference methods to estimate parameters that contribute to decision-making in chemistry, biology and social sciences.

#### **LBC2022 MICROBIOLOGY LAB**

Develop microbiological techniques by practicing methods used in a lab to isolate, identify, cultivate and control microorganisms.

#### **LB12062 ZOOLOGY LAB I**

Define the different groups of invertebrates, examining their morphologic structures, life cycles and behavior patterns to identify the importance of adaptation in their ecology, diversification and evolution.

#### **LBC2012 MICROBIOLOGY**

Identify the fundamentals of morphology and functioning of microorganisms, reviewing their structure and metabolism to analyze phenomena related to the world of microorganisms. Describe the relationships between microorganisms and the environment, reviewing their physiological activities in order to establish the beneficial and damaging effects.

#### **LB12052 ZOOLOGY I**

Analyze unification concepts in zoology, through the classification of animal phyla groups according to evolutionary events to relate the great animal groups between them, and according to the ecologic, morphologic and development characteristics.

#### **LB13042 MOLECULAR BIOLOGY**

Identify the basics of molecular biology by reviewing the structure of macromolecules, their functional consequences and the mathematical description of their properties to interpret and analyze their participation in cellular metabolism, their control and development of the cell and the organism.

#### **LB13052 BOTANY I**

Evaluate the Phylum, Chlorophyta, Bryophyta and Pterophyta, by examining their morpho-anatomical and ecological

characteristics to analyze the role of plants in evolutionary history and their phylogenetic relations in the Plantae Kingdom and with other organisms.

#### **LBI3062 BOTANY LAB I**

Identify in the field and in herbarium samples the members of the groups: Chlorophyta, Marchantiophyta, Anthocero-phyta, Bryophyta, Sphenophyta, Lycophyta and Pteridophyta, using dichotomous keys to apply formal methods of biological identification. Analyze the phases of the cycles of life in these groups, applying the methods to collect and cultivate, to distinguish the evolutionary context of vegetable diversity.

#### **LBI3032 ZOOLOGY LAB II**

Distinguish different groups of chordates by examining their morphologic characteristics, locomotion, feeding and reproduction to interpret the importance of their adaptations in their ecology, their diversification and evolution.

#### **LBI3012 PROFESSIONAL PRACTICES 1**

Apply the concepts and skills acquired during the licenciatura by working in multidisciplinary biology teams to develop skills to identify problems in the job market.

#### **LBI3022 ZOOLOGY II**

Classify unification concepts in zoology related to the interpretation of the diversity of vertebrates, by ordering the vertebrate clades according to evolutionary events, to relate the great vertebrate groups between them and according to their ecologic, morphologic, behavior and development characteristics.

#### **LBI3072 BOTANY II**

Compare the Spermatophyta groups, identifying their morpho-anatomic and ecologic characteristics to distinguish and analyze the ecologic and evolutionary success of plants with seeds and their phylogenetic relations within this group.

#### **LBI3112 ANIMAL PHYSIOLOGY**

Identify the organs of an animal by analyzing the relationships between the functioning of each system and anatomic, environmental and evolutionary factors that determine it, to classify how they are organized and how organs work for different groups of animals.

#### **LBI3092 GENETICS**

Identify heredity principles, as well as the causes of genetic variation of living beings, through the analysis of their components and variables to interpret genetic studies.

#### **LBI3142 CELLULAR AND MOLECULAR BIOLOGY LAB**

Correctly apply the cellular and molecular techniques by practicing them in the lab, in order to analyze biological systems.

#### **LBI3082 BOTANY LAB II**

Discover the Gyngophyta, Coniferophyta, Cycadophyta and Magnoliophyta groups, observing their macroscopic and microscopic characteristics, as well as their life cycles and adaptations to categorize these groups as biologic diversity and valuing their evolutionary success. Examine the biological forms and reproductive structures of such groups through the operation of specimens and herbarium database to classify the groups that represent regional and national flora, their ecological importance and representative families.

#### **LBI3122 ANIMAL PHYSIOLOGY LAB**

Analyze the functioning of different organic systems in invertebrates and vertebrates by observing, examining and measuring their physiological response to different variables in controlled experiments, to identify the importance of physiological mechanisms in maintaining vital functions of multicellular organisms.

#### **LBI3132 BIOTIC RESOURCES OF MEXICO**

Determine the challenges and threats that conservation of biotic resources in Mexico faces, by characterizing their biodiversity, physiography, ecosystems, patterns of use and national policies of natural resources, to develop strategies for the sustainable handling of the country's natural resources.

#### **LBI3102 SELECT TOPICS 1**

Analyze molecular biology topics by studying their theoretical bases and the integration with the practice to develop solutions to specific problems

#### **LBI4012 ECOLOGY AND ENVIRONMENTAL CHANGE**

Relate the structure and function of ecosystems through the analysis of interactions between their different components (biotic and abiotic) to evaluate human effects and their consequences on ecosystems, specifically in climate change; evaluate the global measures of remediation, mitigation and conservation.

#### **LBI4052 PLANT PHYSIOLOGY**

Analyze the mechanisms that superior plants use to maintain their functions, through the description and examination of the metabolic processes and/or cycles that intervene in the balance of water, collection of solar energy and its transformation to nutritional substances, water absorption and mineral salts, and the intervention of hormones in plant responses, to examine how plants respond and adapt to their biotic and abiotic environment.

#### **LBI4062 PLANT PHYSIOLOGY LAB**

Describe the vegetable growth process and the factors that determine it by designing and developing experiments to identify the quantification process of plants.

**LBI4042 ECOLOGY METHODS**

Interpret biotic and physical data in their ecologic significance, applying collecting techniques and data analysis in the field to develop solutions to current ecologic problems.

**LBI4022 PROFESSIONAL PRACTICES 2**

Develop activities in multidisciplinary biology work environments to identify real problems and recommend solutions through the application of your own theoretical concepts.

**LBI4032 SELECT TOPICS 2**

Examine statistics topics, using the most current tools and methods to develop solutions to statistical problems.

**LBI4122 BIOLOGY OF DEVELOPMENT**

Analyze the processes with which animals grow and develop, using concepts of genetic control, cellular growth, cellular differentiation and morphogenesis to identify the relationships between development mechanisms and evolutionary processes

**LBI4102 EVOLUTIONARY BIOLOGY**

Relate phenomena and processes to which living beings are subjected, by analyzing evolution theory of natural selection with an evolutionary perspective, to interpret the adaptation, biologic diversity and similarity between organisms, and the change and adaptation mechanisms of organisms.

**LBI4072 ECOLOGY OF COMMUNITIES**

Analyze, from the principles of Ecologic Theory, the structure and function of biologic communities and ecosystems, examining their different organization and structure levels: diversity, productivity, trophic structure, complex interaction networks and biogeochemical cycles, to develop an integral understanding of nature, including the interactions between species and their abiotic environment.

**LBI4132 BIOLOGY OF DEVELOPMENT LAB**

Relate animal embryonic development through microscopic and experimental examination of its different stages in preserved samples of model organisms, to identify cellular differentiation and morphologic changes in the development of a new individual.

**LBI4112 EVOLUTIONARY BIOLOGY LAB**

Evaluate genetic variation within populations through a quantitative analysis of human traits and those of other species; use simulations and molecular sequence databases to find a way to drive evolutionary change agents.

**LBI4082 CONSERVATION METHODS IN BIOLOGY**

Analyze which are the fundamental challenges in intellectual, conceptual and practical environments of conservation biology, by developing proposals to solve specific problems that identify species conservation methods in all dimensions of human life.

**LBI4092 SELECT TOPICS 3**

Analyze ecology topics, integrating the concepts and theories to apply the most current and appropriate tools and methods to solve local and global ecology problems.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral

human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

***\*UDLAP's General Education (GenEd) courses.***

# CLINICAL BIOCHEMISTRY

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

## **QUI2012 BIOCHEMISTRY I**

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing spe-

cialized information and applying academic and scientific standards to disseminate knowledge.

#### **QUI2032 ORGANIC CHEMISTRY LAB II**

Understand different chemical reactions by observing good lab practices and reagent handling to obtain organic compounds. Select the physical and instrumental methods of analysis to identify an organic compound, reviewing the physical and spectroscopic data obtained.

#### **QUI2052 CHEMICAL THERMODYNAMICS LAB**

Analyze heat transfer process data by creating and correctly interpreting graphs to obtain information on thermodynamic parameters.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **QUI2022 ORGANIC CHEMISTRY II**

Identify the main reactions in organic chemistry and their mechanisms using chemical equations to analyze how organic compounds are transformed. Apply nuclear magnetic resonance spectroscopy, interpreting the spectra to understand the structure of a molecule.

#### **QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

#### **LBI2072 CELLULAR BIOLOGY**

Identify the basic structures of the cell, reviewing its components and interrelation to discover and distinguish its function. Discover the relationship of the different organelles, their functions, and their structure at a cellular and organism level and relate it to the state of health or pathology of the organism, integrating the information in function of each one in a cellular context.

#### **QUI2062 BIOCHEMISTRY II**

Identify the fundamentals of biochemistry by reviewing the general metabolism of living beings to interpret their interrelations with regulation, growth and differentiation at the cellular level. Describe the relationships of metabolism and its deficiencies by identifying detectable metabolic intermediaries for clinical interpretation.

#### **MAT2062 INFERENCE STATISTICS**

Apply various statistical techniques using different statistical inference methods to estimate parameters that contribute to decision-making in chemistry, biology and social sciences.

#### **LBC2032 GENERAL HISTOLOGY**

Identify microscopic structures of cells and tissues, describing their morphological characteristics to determine the role they play in different organisms and systems of the human body.

#### **LBC2022 MICROBIOLOGY LAB**

Develop microbiological techniques by practicing methods used in a lab to isolate, identify, cultivate and control microorganisms.

#### **QUI2102 ANALYTICAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to identify and quantify a substance's components through different analysis methods, to manipulate the material and lab equipment used in analytical chemistry.

#### **LBC2012 MICROBIOLOGY**

Identify the fundamentals of morphology and functioning of microorganisms, reviewing their structure and metabolism to analyze phenomena related to the world of microorganisms. Describe the relationships between microorganisms and the environment, reviewing their physiological activities in order to establish the beneficial and damaging effects.

#### **QUI2092 ANALYTICAL CHEMISTRY**

Identify a substance's components through different analysis methods, for the separation, identification and determination of the ions and molecules that form a material.

#### **QUI3012 INSTRUMENTAL ANALYSIS**

Manage the different instrumental analysis techniques by using characterization methods and techniques to analyze and identify materials.

#### **LBC3022 ANATOMY AND PHYSIOLOGY**

Identify the tissues, organs, and systems of an organism with its physiological functions, through the review and analysis of its parts and characteristics, to correlate them with the person's state of health or with a diagnosis or treatment to an illness.

#### **LBI3042 MOLECULAR BIOLOGY**

Identify the basics of molecular biology by reviewing the

structure of macromolecules, their functional consequences and the mathematical description of their properties to interpret and analyze their participation in cellular metabolism, their control and development of the cell and the organism.

**QUI3022 INSTRUMENTAL ANALYSIS LAB**

Apply common instrumental analysis methods in industry and research, using different methods and techniques to characterize materials.

**LBC3032 ANATOMY AND PHYSIOLOGY LAB**

Apply the basic principles of anatomy and human physiology through experimental work that reflects their functionality, to develop practical abilities that allow you to interpret physiological function tests of an organism and its anatomy.

**LBC3012 PROFESSIONAL PRACTICES 1**

Identify integral solutions to practical problems by applying theoretical knowledge and skills acquired to compare the theoretical during your professional practices.

**LBC3092 PATHOPHYSIOLOGY**

Identify the basic mechanisms and pathological processes, reviewing the normal function of organs and systems of the body, to interpret lab results and relate them to different illnesses and their specific mechanisms that produce clinical manifestations.

**LBI3092 GENETICS**

Identify heredity principles, as well as the causes of genetic variation of living beings, through the analysis of their components and variables to interpret genetic studies.

**LBC3062 HEMATOLOGY**

Apply knowledge of hematological morphology and physiology, as well as basic diagnosis, by reviewing and describing their components, functionality and characteristics to interpret lab results of hematic pathologies.

**LBC3072 IMMUNOLOGY**

Describe the structure and function of the molecules and cells that participate in the human's immune response, reviewing and analyzing their composition, functionality and characteristics to relate the conceptual and operational handling of the main types of immune response, stages, cells and tissue involved in immune illnesses.

**LBC3082 IMMUNOLOGY AND HEMATOLOGY LAB**

Apply the basic terminology used in hematology and immunology and their use in a clinical lab, describing and carrying out immune-hematological tests to interpret results and help in a clinical diagnosis.

**LBC3052 MOLECULAR METHODS LAB**

Apply the fundamentals of biochemistry, molecular and cellular biology to develop and execute detection tests, quantification and diagnosis to solve problems by using equations and methodologies.

**LBC3042 APPLIED MOLECULAR METHODS**

Apply the fundamentals of biochemistry, molecular and cellular biology to develop and carry out detection tests, quantification and diagnoses, to solve problems by reviewing equations and the methodologies that are used.

**LBC3102 MEDICAL VIROLOGY**

Identify the most important viruses in human health by reviewing the latest information of each medically important group, to consider satisfactory results that support prevention and/or treatment strategies according to the etiological agents.

**LBC4042 MEDICAL PARASITOLOGY LAB**

Apply the knowledge acquired through lab experiments to identify, safely and responsibly, the different parasites (protozoan, helminthes and their vectors) that can affect and cause illness in human beings.

**LBC4062 CLINICAL CHEMISTRY LAB**

Interpret lab tests through integration and performance of clinical biochemical techniques to prepare diagnosis, treatment and follow-up of patients.

**LBC4032 MEDICAL PARASITOLOGY**

Analyze the different types and species of pathogenic parasites (protozoan, flatworms, and arthropods) that affect human health by identifying the parasites and most effective and least toxic treatments to propose treatments and/or prevent them.

**LBC4022 PROFESSIONAL PRACTICES 2**

Apply the knowledge acquired during their formative process in a work team to carry out specific activities in different areas of Clinical Biochemistry; develop a more complete and global vision of biochemistry problems and situations.

**LBC4052 CLINICAL CHEMISTRY**

Interpret laboratory tests in illnesses that affect the metabolism of biomolecules, the electrolytic balance and cellular survival, through analysis and correlation of results in normal and pathological conditions, to produce reliable results that help the health team to make diagnosis and treatment decisions.

**LBC4012 SELECT TOPICS 1**

Analyze vanguard topics in biomedicine by entering into de-

tail in conceptual and analytical knowledge in the search for information and solution of problems, to create new contributions in this field of knowledge

#### **LBC4072 TOXICOLOGY**

Classify harmful substances to which living organisms are exposed in the environment, through the identification of their origin, grade of toxicity, toxicokinetics and toxicodynamics, to apply national and international toxicology guidelines in different professional development areas. Explain the methodology used to identify, characterize and evaluate the biological consequences of toxic or potentially toxic compounds of various origins, determining their exposure characteristics and system involved, to prevent toxicological risks and intoxications.

#### **LBC4132 QUALITY ASSURANCE IN THE LAB**

Identify the requirements that must be met in clinical analysis labs, reviewing and describing the regulations, and using test analyses to interpret reliable results.

#### **LBC4102 MEDICAL BACTERIOLOGY**

Apply the most common and current methods to isolate and identify bacteria in human health, applying information of every microbe group in clinical lab practices to recommend a treatment according to the etiological agent.

#### **LBC4122 BACTERIOLOGY AND MYCOLOGY LAB**

Identify the most adequate methodology, through the analysis of biological samples, to identify bacteria and fungi that can affect and produce disease in human beings. Apply theoretical concepts, through lab experiments, to identify, safely and responsibly, the bacteria and fungi agents that can affect and produce disease in human beings.

#### **LBC4112 MEDICAL MYCOLOGY**

Identify the different types and species of pathogen fungi, analyzing the most frequent mycoses and fungicides of medical interest in the world and in Mexico, together with information about the most effective and least toxic antifungals to propose treatment and/or prevention.

#### **LBC4082 SELECT TOPICS 2**

Identify public health topics by analyzing conceptual and technological knowledge of science to develop new solutions.

#### **LBC4092 SELECT TOPICS 3**

Explain current health management and legislation topics by applying conceptual and analytic knowledge of experimental sciences to propose preventive and corrective solutions to problems related to community health.

### **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

#### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

#### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## GENERAL STUDIES ELECTIVE IN HUMANITIES \*

### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# DATA SCIENCE

## LIS1012 ALGORITHMS AND PROGRAMMING

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1062 SUPERIOR ALGEBRA

Establish solid mathematical foundations, proving and using math properties to model the phenomena of the applied sciences.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## MAT1042 ANALYTIC GEOMETRY

Apply the conics and basic math concepts, using their algebraic properties with a vectorial approach, to model relevant indicators.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LIS1022 OBJECT ORIENTED PROGRAMMING

Describe object-oriented paradigms using UML (Unified Modeling Language) notation and Java programming language to implement the requirements of an application.

## LDS1011 DISCRETE ANALYSIS

Establish the principles and characteristics of discrete mathematics by using formal logic and discrete mathematical reasoning to develop solutions to complex problems.

## MAT2012 CALCULUS II

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LIS2032 DATA STRUCTURES

Identify the characteristics, advantages and disadvantages of existing data structure management algorithms by implementing and analyzing them to develop solutions that contribute to the creation of complex computational systems.

## LEX0132 FOREIGN LANGUAGE III \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LAT2012 STOCHASTIC MODELS I

Apply probability techniques through different univariate models to calculate probabilities and expected values to real problems that contribute in decision-making.

**LAT2022 MATRIX THEORY**

Apply vectorial spaces, matrix theories and lineal transformations to solve real problems and model diverse phenomena, applying matrix theory in your major by using technological resources.

**MAT2042 MATHEMATICAL ANALYSIS I**

Apply the derivative and integral of functions of a variable to solve engineering, finance, and the science problems using the multipliers method to develop solutions to optimization problems.

**LIS2082 DATABASES**

Develop database applications, representing their information with the related data model without inconsistencies or anomalies, to organize storage and for its quick and structured access.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LIS2012 DISCRETE MATH**

Identify the appropriate problem solving design techniques through asymptotic analysis of an algorithm in order to develop efficient solutions.

**LAT2062 STOCHASTIC MODELS II**

Apply probability techniques, using different multivariate models, to calculate probabilities and expected values to real problems that contribute to decision-making.

**MAT3012 MATHEMATICAL ANALYSIS II**

Apply line integrals and multiple integrals of variable functions, modeling the infinite sums of their indicators to develop solutions to physics, finance and science problems.

**LFA3082 NUMERICAL ANALYSIS**

Develop programming language code, using algebra and calculus to analyze nonlinear, algebraic and differential equations.

**LAT3012 INFERENCE METHODS I**

Apply different methodologies to estimate interest parameters that contribute to decision-making in different actuary science areas, developing different descriptive statistics, point estimate and interval estimation methods.

**LDS1021 DATAMINING**

Apply principles of data mining by developing models of analysis to identify methods to retrieve information according

to specific needs and support decision-making processes.

**LAT3022 STOCHASTIC MODELS III**

Apply probability techniques and stochastic processes to develop probability and stochastic process models to calculate probabilities and expected values in real problems, thus contributing to decision-making.

**LDS1031 PROFESSIONAL PRACTICES 1**

Apply, through experience, the knowledge acquired in the studies of data science in professional settings by using theories and methods in the analysis, diagnosis, planning, evaluation and implementation of solutions in professional settings.

**LDS1041 TOPOLOGICAL DATA ANALYSIS**

Apply concepts from data topology by using formal homology and its characteristics in data analysis and the solution of problems in the field of data science.

**LEC3092 ECONOMETRICS I**

Use statistical tools from specialized computer packages and databases to quantitatively analyze economic phenomena.

**LIS3082 ARTIFICIAL INTELLIGENCE**

Design applications using artificial intelligence search techniques, deductive databases and genetic algorithms to build intelligent software based on automatic reasoning and geared towards optimization.

**LAT3062 INFERENCE METHODS II**

Apply diverse statistical methodologies by developing different parametric and non-parametric test hypotheses to define the parameters of a population, thus contributing to decision-making in actuarial sciences.

**LDS1051 PATTERN RECOGNITION**

Explore the techniques for pattern recognition through the development of methods and classifiers for optimal selection in the field of images, audio and voice recognition, data mining, information retrieval/recovery, and bio-informatics.

**LII2042 OPTIMIZATION THEORY AND TECHNIQUES**

Analyze practical problems by applying mathematical programming models and methods to develop optimal solutions to make decisions

**LDS1071 MACHINE LEARNING**

To identify the concepts of supervised and unsupervised learning by implementing and analyzing algorithms in the development of solutions to specific problems.

### **LEC4032 ECONOMETRICS II**

Analyze statistical tools using time series databases to differentiate economic and financial phenomena.

### **LDS1091 PROFESSIONAL PRACTICES 2**

Evaluate problems and their solutions in the professional practice by applying the knowledge from data science in order to develop better alternatives to solve problems.

### **LDS1101 CONCURRENT COMPUTING**

Distinguish and contrast characteristics from different algorithms in parallel and concurrent computing for data analysis in complex scenarios.

### **LDS1081 NEURAL NETWORKS**

Apply the theory and techniques from neural networks through the interface connecting modern technologies and human brain to solve problems in data science, statistics and computer science.

### **LDS1061 SELECT TOPIC 1**

Analyze cutting-edge techniques for data analysis selecting specialized methodologies in multivariate methods.

### **LIS4102 CLOUD COMPUTING AND BIG DATA**

Identify the concepts of design and implementation of “big data” systems by analyzing existing successful systems to develop solutions to specific problems.

### **LAT4052 ADVANCED OPTIMIZATION**

Analyze practical application problems by applying mixed-integer programming methods to develop solutions that support decision-making processes when an optimal alternative is needed for a specific objective.

### **LDS1111 SELECT TOPIC 2**

Analyze cutting-edge topics in statistical learning through the study of theories and specialized models in order to identify applications of data science in new technological models.

### **LDS1121 SELECT TOPIC 3**

Explores cutting-edge topics in cybersecurity for data science by analyzing models and their applications in order to identify strategies in data protection.

### **LDS1131 DATA VISUALIZATION**

Apply techniques for proper data visualization and presentation through the study of scenarios to identify the best practices for an effective communication.

## **GENERAL STUDIES ELECTIVE IN ARTS \***

### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## **GENERAL STUDIES ELECTIVE IN MATH \***

### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# NUTRITION SCIENCE

## LMR1032 ANATOMY AND PHYSIOLOGY

Evaluate the fundamentals of morphology and normal functioning of the organism, analyzing the structure and normal function of the different systems to obtain a comprehensive view on the physical structure of the human being.

## QUI1022 GENERAL CHEMISTRY LAB

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## LCN1012 DIETETICS

Design normal and therapeutic meal plans, analyzing the characteristics of a correct diet and nutritional contribution of each food group, to recommend the right foods and menus to individuals, following the current Mexican dietary guidelines.

## LMR1052 PHYSIOLOGY

Understand the basics of medical physiology and the fundamentals of an organism's normal functions; analyze the disorders that occur with disease, using scientific reasoning with a critical attitude to correlate the knowledge of physiology with an adequate diagnosis and treatment.

## QUI1042 ORGANIC CHEMISTRY LAB I

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## QUI1032 ORGANIC CHEMISTRY I

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

## QUI2012 BIOCHEMISTRY I

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

### **LCN2022 CREATING MEAL PLANS**

Understand the basic measurements methods, equipment used and hygiene techniques to handle and prepare food, applying the standard rules and regulations to develop normal and modified foodstuff, conserving their nutritional properties.

### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **LCN2012 EVALUATION OF THE NUTRITIONAL STATE**

Identify the nutritional state of an individual, collecting, analyzing and interpreting anthropometric, biochemical, clinical and dietary information for a nutritional diagnosis that follows the guidelines established by Mexican regulations and nutrition academies.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **QUI2062 BIOCHEMISTRY II**

Identify the fundamentals of biochemistry by reviewing the general metabolism of living beings to interpret their interrelations with regulation, growth and differentiation at the cellular level. Describe the relationships of metabolism and its deficiencies by identifying detectable metabolic intermediaries for clinical interpretation.

### **MAT2062 INFERENCE STATISTICS**

Apply various statistical techniques using different statistical inference methods to estimate parameters that contribute to decision-making in chemistry, biology and social sciences.

### **LFB2012 PHARMACOLOGY**

Describe the pharmacological bases of current therapy by using pharmacology-specific terminology to identify the effects of medications. Discuss the current pharmacology challenges in discovering new drugs, by learning their behavior in the body and the circumstances that modify its response to pharmacological treatment, to propose new optimization methods for pharmacotherapies.

### **LMR2062 CLINICAL IMMUNOLOGY**

Identify the mechanisms that the human body uses to respond, as specific and nonspecific protection, against infectious agents or external factors, analyzing immunological aspects and the cellular relationship they establish.

### **LBC2012 MICROBIOLOGY**

Identify the fundamentals of morphology and functioning of microorganisms, reviewing their structure and metabolism to analyze phenomena related to the world of microorganisms. Describe the relationships between microorganisms and the environment, reviewing their physiological activities in order to establish the beneficial and damaging effects.

### **LCN2032 NUTRITION IN THE LIFE CYCLE**

Identify the stages of the human vital cycle and their main physiological and psychosocial characteristics and daily recommended intakes, designing a meal plan in accordance to the guidelines established by current Mexican regulations to establish healthy eating habits that promote development, growth and maintenance.

### **LMR3012 BIOETHICS IN HEALTH SCIENCES**

Debate professional development based on codes and ethical principles, justifying legal regulations, laws, individual guarantees, human rights and cultural diversities, in order to assess the limitations and opportunities that favor a sustainable multidisciplinary approach.

### **LBI3042 MOLECULAR BIOLOGY**

Identify the basics of molecular biology by reviewing the structure of macromolecules, their functional consequences and the mathematical description of their properties to interpret and analyze their participation in cellular metabolism, their control and development of the cell and the organism.

### **LCN3022 BIOCHEMISTRY AND NUTRITIONAL PHYSIOLOGY**

Identify the digestion, absorption, transportation, storage and breakdown of nutrients, as well as their regulation points, to maintain homeostasis, integrating metabolic and physiologic functions of nutrients at a cellular, tissue and organism level.

### **LNA3032 FOOD MICROBIOLOGY LAB**

Interpret the results obtained from microbiological analyses and apply the standards of food safety by working in laboratory in sterile conditions to handle, cultivate and conserve microorganisms and avoid the potential of corruption or pathogenicity.

### **LNA3022 FOOD MICROBIOLOGY**

Examine the importance of microorganisms in relation to food spoilage and disease prevention, identifying their effects on various factors intrinsic and extrinsic to food in order to establish a good sanitary quality of a product and its handling.

### **LCN3012 PROFESSIONAL PRACTICES 1**

Apply the knowledge acquired in dietetics, evaluating the nutritional state, nutrition in life cycles and elaboration of meal plans in hospitals, industries, government or food sector; evaluate the nutritional state of healthy individuals in different stages of life and design meal plans to identify the nutrition problems in real cases.

### **LPA3022 INTERVIEW THEORY AND TECHNIQUES**

Apply the different phases of a psychological interview, analyzing ethical aspects and communication skills to simulate a psychological interview of clinical cases.

### **LBC3092 PATHOPHYSIOLOGY**

Identify the basic mechanisms and pathological processes, reviewing the normal function of organs and systems of the body, to interpret lab results and relate them to different illnesses and their specific mechanisms that produce clinical manifestations.

### **LBI3092 GENETICS**

Identify heredity principles, as well as the causes of genetic variation of living beings, through the analysis of their components and variables to interpret genetic studies.

### **LBC3052 MOLECULAR METHODS LAB**

Apply the fundamentals of biochemistry, molecular and cellular biology to develop and execute detection tests, quantification and diagnosis to solve problems by using equations and methodologies.

### **LNA3082 FOOD CHEMISTRY LAB**

Explain the changes that can occur in food, to avoid deterioration, prevent chemical change or improve a food; understand the relationship of its components: water, carbohydrates, lipids, protein, enzymes and pigments.

### **LCN3032 NUTRITION AND PHYSICAL ACTIVITY**

Identify the physiological changes of the human body in exercise conditions, and the different metabolic destinations of nutrients during exercise, analyzing additional nutritional requirements to design nutritional interventions.

### **LNA3072 FOOD CHEMISTRY**

Understand the chemical structures of the major food components, analyzing the key chemical and biochemical changes of food and changes affecting its composition, structure, quality and safety to establish the influence on its physical, chemical, nutritional and organoleptic properties and to create new solutions, products, systems, components and/or processes.

### **LMR3022 PUBLIC HEALTH AND EPIDEMIOLOGY IN HEALTH SCIENCES**

Identify the importance of epidemiology by applying epidemiological time, place and person variables to study the health situation of a population. Evaluate health indicators of communities and populations, by identifying health problems to design programs that comply with a public health policy.

### **LNA4022 FOOD ANALYSIS**

Analyze the main methods used by interpreting their fundamentals to propose modifications without affecting the accuracy of the results.

### **LNA4032 FOOD ANALYSIS LAB**

Identify the macro and micro components in food by analyzing the results obtained in experiments; apply the concepts and theories of physical chemistry and food analysis.

### **LCN4022 CLINICAL NUTRITION I**

Establish therapeutic and nutritional intervention strategies in metabolic, hepatic, pancreatic, renal and gastrointestinal diseases, analyzing the physiopathology, nutritional diagnosis, associated diseases and life cycle of the patient, applying the official Mexican regulations and national and international guides of clinical practice to develop treatment, prevention and/or recovery proposals.

### **LCN4012 PROFESSIONAL PRACTICES 2**

Develop activities in hospitals, companies, government sector, and research centers to determine an individual's nutritional state to design nutritional plans.

### **LCN4032 SELECT TOPICS 1**

Examine food composition and health topics by analyzing chemical changes and sources of contamination in food processing, to identify their potential effects on human health and to develop harmless meal plans.

### **LCN4042 SELECT TOPICS 2**

Analyze nutritional education topics, studying scientific knowledge that is focused on the person and/or groups, to identify mechanisms that contribute to disease prevention, nutritional treatment and acquisition of healthy eating habits.

### **LMR4022 RESEARCH METHODOLOGY IN HEALTH SCIENCES**

Develop a theoretical and/or experimental project, under the direction and advice of a professional, in any of the areas or topics, reviewing methodology to design a research protocol.

**LCN4072 CLINICAL NUTRITION II**

Establish therapeutic and nutritional strategies in individuals who are malnourished due to serious pathologies, examining the physiopathology, nutritional diagnosis, associated diseases, and life cycle to propose treatment, prevention and/or recovery treatments.

**LCN4092 COMMUNITY NUTRITION**

Design intervention programs to develop solutions to health problems related to food and nutrition, evaluating the nutritional state and sociocultural context in groups and communities.

**LPA4072 PSYCHOLOGY OF FOOD**

Assess disruptive eating behaviors analyzing cognitions and social aspects to identify the disorder and recommend a healthy lifestyle.

**LCN4052 NUTRITIONAL SUPPORT**

Evaluate the nutritional state of individuals in critical stages due to pathological, stress, metabolic and/or prolonged fasting, to establish nutritional strategies, enteral or parenteral, applying national and international clinical practice guidelines.

**LCN4082 SELECT TOPICS 3**

Analyze Nutrigenomics, analyzing theories and methodologies to propose solutions with critical thinking.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# DENTAL SURGEON

## LMR1032 ANATOMY AND PHYSIOLOGY

Evaluate the fundamentals of morphology and normal functioning of the organism, analyzing the structure and normal function of the different systems to obtain a comprehensive view on the physical structure of the human being.

## LMR1022 CLINICAL BIOCHEMISTRY

Identify the constitution of biomolecules, by observing their development in the lab, in order to establish their relation with the human body. Review the processes involved in molecular mechanisms -- and the chemical transformations responsible for biological processes that are part of an organism functions -- simulating those processes to generate better diagnostics in professional practice.

## LMR1042 EMBRYOLOGY AND GENETICS

Outline the origin, growth, and development of a human being, and to assume a preventative position to promote adequate health habits, distinguishing the morphologic changes that may be present at different stages of the formation and development of a human being.

## ESPO011 SPANISH I

At the end of this course, the student will be able to give information to present argumentative texts in his/her discipline using simple writing to persuade in areas of academic interactions.

## LMR1012 HISTOLOGY

Describe the microscopic structures of cells, tissues, and organs that constitute the various apparatus and systems of the human body, observing cells in the lab to relate them to pathophysiology of disease.

## LEX0111 FOREIGN LANGUAGE I \*

At the end of this course, the student will be able to convey and understand familiar and new information orally and in writing.

## LCD1011 DENTAL ANATOMY

Explain the concepts of dental anatomy, understanding the function of the mouth and the parts and characteristics of teeth that allow a dental surgeon to create a wax model of teeth to provide treatment according to the patient's needs.

## LMR1062 CELLULAR AND MOLECULAR BIOLOGY

Distinguish the cellular and molecular structure, organization, compartmentalization, and complexity needed to support vital phenomena in unicellular organisms and in the integration of organisms, correlating knowledge of cell and molecular biology with adequate diagnoses and treatments that understand the processes of cellular regulation and gene expression.

## ESPO021 SPANISH II

At the end of this course, the student will be able to select and give information and to direct his/her argumentative and spoken skills to compose texts in his/her discipline and to use them to inform and increase academic and scientific knowledge.

## LMR1052 PHYSIOLOGY

Understand the basics of medical physiology and the fundamentals of an organism's normal functions; analyze the disorders that occur with disease, using scientific reasoning with a critical attitude to correlate the knowledge of physiology with an adequate diagnosis and treatment.

## LEX0121 FOREIGN LANGUAGE II \*

At the end of this course, the student will be able to convey and understand familiar and new information orally and in writing.

## MAT0011 QUANTITATIVE REASONING

At the end of this course, the student will be able to setup and solve problems, translate wording into symbolic relationships, manage symbols and use graphs and symbols to communicate quantitative data and graphs.

## INFO011 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

At the end of this course, the student will be able to use communication and information technologies in research, decision-making, ideas and proposals, using processing abilities to validate, share, retrieve and use information in an effective and ethical manner.

## LCD2041 DENTAL ANESTHESIOLOGY

Understand anesthetics and their recommended odontology

procedures to use them on patients. To analyze the characteristics of patients, steps to follow, dosage, types of anesthetics, and specific techniques to administer optimal sedations on patients.

**LMR2022 GENERAL PHARMACOLOGY**

Interpret acquired knowledge on general pharmacology, action mechanisms, indications, and contraindications of different drugs used for pain, inflammation, and infection and develop abilities for rational prescription of drugs

**LCD2021 DENTAL MATERIAL LABORATORY**

Explain the physicochemical properties and structures of different odontology materials, analyzing their components and praxis to perfect different techniques to handle and administer materials during odontology practice.

**LEX0131 FOREIGN LANGUAGE III \***

At the end of this course, the student will be able to convey and understand familiar and new information orally and in writing.

**LMR2012 MICROBIOLOGY AND PARASITOLOGY**

Identify the biological bases of microorganisms that cause infectious diseases common in our environment, considering mainly the structural, biochemical, and genetic properties intervening in the infectious disease process. To use adequate samples to isolate and identify microorganisms, based on different kinds of microscopic, biochemical, and immunological tests.

**LCD2011 PREVENTIVE AND COMMUNITY DENTISTRY**

Analyze the importance of preventive and community odontology as well as its daily practice, developing skills that allow the student to be an educator in oral health and to carry out prevention campaigns to treat vulnerable sectors of the population.

**LCD2061 ORAL PATHOLOGY**

Recognize disorders and illnesses of the oral cavity, maxillary, mandible, and teeth by studying the causes and development of signs and symptoms as well as the multidisciplinary approach to participate in the opportune diagnosis and detection of serious illness.

**LMR2032 INTRODUCTION TO HEALTH SCIENCES**

Analyze the propaedeutic methodology based on the syndromes of different human pathologies, applying the technical foundations of the propaedeutic method to advance an etiologic, symptomatic, anatomopathologic, and integral diagnosis. To develop the abilities and skills needed for an

integral examination of the nervous system to obtain complete medical records (inspection, palpation, percussion, and auscultation.)

**AHC0011 ART, HISTORY AND CULTURE**

At the end of this course, the student will be able to identify and analyze communication and action strategies, as well as the influence of political, social and economic transformation of models, cultural artifacts and their conservation.

**LCD2051 OPERATIVE DENTISTRY CLINICS I**

Apply the basic procedures of operative dentistry, describing the elements, dental structures, and lesions to analyze the process needed to return function and aesthetic to teeth.

**MAT2001 STATISTICS**

Manage the basic concepts of mathematical notation used in the descriptive analysis of the data, through the identification of the statistical relationship with the scientific method to apply the descriptive statistical methods in the analysis of social issues.

**LCD2071 DENTAL RADIOLOGY**

Use different intraoral and extra oral radiography techniques understanding the methodology and practice of the use of different types of imaging and processing. Interpret and correctly assess the patient and attend to his/her immediate needs.

**LMR2062 CLINICAL IMMUNOLOGY**

Identify the mechanisms that the human body uses to respond, as specific and nonspecific protection, against infectious agents or external factors, analyzing immunological aspects and the cellular relationship they establish.

**LMR2042 NUTRITION AND METABOLISM**

Understand the basic mathematical notation concepts used in descriptive analysis of data to use descriptive statistical methods in the analysis of social issues.

**LCD2031 OCCLUSION**

Analyze the types of pathologies of the temporomandibular joint by detailed detection of the different tooth eruption stages, understanding the motor function and acquisition of masticatory skills in order to evaluate and apply the ideal integral treatment.

**LMR3012 BIOETHICS IN HEALTH SCIENCES**

Debate professional development based on codes and ethical principles, justifying legal regulations, laws, individual

guarantees, human rights and cultural diversities, in order to assess the limitations and opportunities that favor a sustainable multidisciplinary approach.

#### **LCD3051 OPERATIVE DENTISTRY CLINICS II**

Perform pertinent teeth reconstructions, by describing the procedures to handle tissue in order to make restorations that respect aesthetics and function.

#### **LCD3061 ENDODONTICS**

Identify the physiology, anatomy and pathology of the pulp chamber and periradicular tissue so the student can diagnose, prevent, and provide the ideal treatment to preserve the natural teeth.

#### **EDS0011 ETHICS FOR SUSTAINABLE DEVELOPMENT**

At the end of this course, the student will be able to identify and analyze the general lines of sustained development study, on the practical and theoretical level. The student will be able to understand the relevance of ethical behavior in the design and implementation of sustained development, as well as the deficiencies and accomplishments of Mexico regarding sustained development. Also, the student will be able to know the appropriate policies to obtain significant and responsible social changes regarding sustained development.

#### **LCD3041 DENTAL EXTRACTION**

Describe the basic dental extraction procedures that allow working successfully in the extraction area, by analyzing the surgical basics and clinical behavior to take the necessary steps and provide the patient with adequate treatment and follow-up.

#### **LCD3031 PERIODONTICS**

Identify periodontal disorders and their cure in a structured fashion, in order to reach an accurate diagnosis and a successful therapeutic result. The student will be able to diagnose, choose an ideal treatment, and carry out actions to prevent periodontal diseases.

#### **LCD3021 PROSTHESIS**

Explain the procedures to learning the process of fixed prosthetics in order to develop their skills in an orderly and sequential manner, respecting biological, mechanical, and aesthetic principles.

#### **LCD3121 ENDODONTICS CLINICS**

Distinguish the importance of epidemiology by applying epidemiological variables of time, place, and person for the study of a population's health. Evaluate health indicators in

communities and towns, identifying health problems to design programs that comply with public health policy.

#### **LCD3101 DENTAL EXTRACTION CLINICS**

Perform extractions and oral surgical procedures by using extraction techniques and instruments to achieve avulsion or extraction of the tooth or the root.

#### **LCD3081 PERIODONTICS CLINICS**

Use the basic knowledge as well as the latest procedures and techniques in reconstructive treatment in order to establish regenerative and aesthetic treatment plans. Detect the factors that influence the development of periodontal disease, identifying bad habits, bad odontology procedures, and diseases, in order to reestablish complete oral health.

#### **LCD3111 PROSTHETICS CLINICS**

Know procedures and basics of fixed and removable prosthetics in order to develop orderly and sequential skills, respecting the physiological, mechanical, and aesthetic principles of the oral cavity in order to provide functionality and aesthetics.

#### **LCD3091 PROSTHODONTICS**

Integrate techniques and procedures to make complete dentures; to make optimal use of the different materials and equipment to study and practice total prosthodontics, in order to achieve a simplified and objective display of prosthodontics concepts.

#### **LMR3022 PUBLIC HEALTH AND EPIDEMIOLOGY IN HEALTH SCIENCES**

Identify the importance of epidemiology by applying epidemiological time, place and person variables to study the health situation of a population. Evaluate health indicators of communities and populations, by identifying health problems to design programs that comply with a public health policy.

#### **LCD3071 SELECTIVE TOPICS I**

Diagnose morphological changes in form, color, surface, lesions, intra-osseous, and peribuccal areas of the oral cavity, maxillofacial area, head, and neck by analyzing the histopathology, microbiology, and lab studies in order to detect common and uncommon oral pathologies.

#### **LCD4041 MAXILLOFACIAL SURGERY**

Use maxillofacial surgery techniques and procedures, identifying the basic knowledge as well as the latest techniques in reconstructive, regenerative, and aesthetic treatments to

achieve an appropriate and efficient care. Describe the procedures that ensure safety in surgery, to perform the necessary actions and offer adequate treatment and follow-up to the patient.

#### **LCD4021 PROSTHODONTICS CLINICS**

Develop techniques and procedures to make complete dentures, using different materials and equipment to study and practice prosthodontics, to achieve a simplified and objective explanation of prosthodontics concepts.

#### **LCD4031 PEDODONTICS**

Demonstrate the techniques and preventive procedures in pedodontics, identifying the latest techniques in the treatment of cavities in order to create treatment plans and procedures for adequate restoration. Detect behaviors of the pediatric patient through the analysis of his/her psychological, cognitive, and emotional development, to tailor the procedures and provide safety and trust in the dental practice.

#### **LCD4061 ORTHODONTICS**

Diagnose the changes presented in the oral tissues of the maxillary, head and neck. Analyze the differential diagnoses of similar lesions using the knowledge received, which will help to select the correct treatment.

#### **LMR4012 HEALTH PSYCHOLOGY**

Select the procedures and techniques that best fit different situations, assessing the health aspect in an interdisciplinary way, reviewing biological, social and psychological aspects, to determine the factors that affect the mental pathology of the patient. Analyze personality disorders and other diseases, by classifying each of them and understanding their main traits, in order to practice medicine.

#### **LCD4051 ORAL REHABILITATION**

Use the necessary techniques and procedures to diagnose, treat, and completely rehabilitate patients.

#### **LCD4011 SELECTIVE TOPICS II**

Use odontology as a method to identify people, studying dental pieces, materials, and radiographs as well as clinical histories that provide pre mortem information to correlate data, looking for coincidences or differences that allow identification and/or odontology evidence.

#### **LCD4091 MAXILLOFACIAL SURGERY CLINICS**

Apply techniques and procedures in maxillofacial surgery. Understand the latest procedures and advanced techniques in reconstructive, regenerative, and aesthetic maxillofacial surgery to approach the patient's treatment and rehabilitation.

#### **LCD4121 PEDODONTICS CLINICS**

Apply techniques and procedures in pedodontics, and become aware of basic pediatric patient behavior, in order to manage children and provide a warm environment during dental appointments. Identify the pediatric patient's conduct by analyzing his/her psychological, cognitive, and emotional development, to adapt the procedures and provide safety and trust during the dental session.

#### **LCD4071 GERIATRIC REHABILITATION CLINICS**

Describe physical-organic characteristics of the oral cavity with tooth loss and its relation to the elderly, as well as the factors that intervene in its etiology to provide complete rehabilitation.

#### **LCD4101 ORAL REHABILITATION CLINICS**

Apply techniques and procedures necessary to diagnose, treat and rehabilitate a patient.

#### **LCD4111 ORTHODONTICS LABORATORY**

Analyze the steps to develop an orthodontic treatment following and orderly procedure, identifying the patient's habits and malocclusions in order to describe the dental appliances used.

#### **LMR4022 RESEARCH METHODOLOGY IN HEALTH SCIENCES**

Develop a theoretical and/or experimental project, under the direction and advice of a professional, in any of the areas or topics, reviewing methodology to design a research protocol.

#### **LCD4081 SELECTIVE TOPICS III**

Use surgically innovative techniques and procedures, evaluating reconstructive, regenerative, and aesthetic treatments in order to achieve an ideal and efficient management of the patient.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## GENERAL STUDIES ELECTIVE IN MATH \*

### MAT0012 MATH FOR THINKING

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### MAT0022 MATH AND CULTURE

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

## GENERAL STUDIES ELECTIVE IN HUMANITIES \*

### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# NURSING

## **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

## **LMR1032 ANATOMY AND PHYSIOLOGY**

Evaluate the fundamentals of morphology and normal functioning of the organism, analyzing the structure and normal function of the different systems to obtain a comprehensive view on the physical structure of the human being.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

## **LEF1012 BASIC PRINCIPLES OF NURSING I**

Identify the components of holistic care and emotional support by understanding the basic needs of patients and their response as individuals, groups, families, and communities. Describe the nursing process stages by analyzing the fundamental procedures of each to carry out interventions using the scientific method.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## **LCN1012 DIETETICS**

Design normal and therapeutic meal plans, analyzing the characteristics of a correct diet and nutritional contribution of each food group, to recommend the right foods and menus to individuals, following the current Mexican dietary guidelines.

## **LMR1052 PHYSIOLOGY**

Understand the basics of medical physiology and the fundamentals of an organism's normal functions; analyze the disorders that occur with disease, using scientific reasoning with a critical attitude to correlate the knowledge of physiology with an adequate diagnosis and treatment.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LEF1032 BASIC NURSING PRINCIPLES PRACTICE**

Classify the components of holistic care and emotional support by assessing patients and understanding human responses in individuals, groups, families, and communities. Apply the stages of the nursing process by analyzing the main elements of each to carry out interventions with a scientific method.

## **LEF1022 BASIC PRINCIPLES OF NURSING II**

Understand the components of holistic care and emotional support through critical analysis of the stages of the nursing process, ethical codes, and patient rights to intervene and develop integral solutions that meet the needs of the patient, group, family or community with professionalism, altruism, and humanism.

### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **MAT2092 STATISTICS FOR HEALTH SCIENCES**

Use different statistics techniques through various statistical inference methods to estimate parameters that contribute to decisions in different areas of chemistry, biology, and social sciences.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LEF2022 NURSING MODELS AND THEORIES**

Identify philosophic and theoretical trends and models in nursing by analyzing the fundamentals and tools of each and considering the relevant physical, social, cultural, psychological, spiritual, and environmental factors to develop diagnoses, interventions, programs, and projects for patients care.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

### **LEF2012 PROMOTION OF FAMILY AND COMMUNITY HEALTH**

Analyze national regulations, epidemiological surveillance systems, and public health theories in health promotion and disease prevention in families by assessing physiological and pathological information to develop diagnoses and design healing, rehabilitation, and/or damage control strategies that meet the needs of society.

### **LEF2062 MOTHER AND CHILD NURSING**

Examine the pathologies of the female reproductive system and their care; analysis of the sexual function and human reproduction control to identify different diseases during pregnancy and puerperium, and intervention to avoid medical complications in these stages with correct and pertinent care.

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **LEF2042 OBSTETRICS GYNECOLOGY**

Describe the different stages of gynecological development and their complications, identifying and assessing risk factors to understand patient's optimal health and avoid high-risk pregnancies. Develop theoretical-practical knowledge in obstetrics by studying pathologies of the female reproductive system, its care and sexual function to attend holistically different reproductive stages and prevent illness or maintain and recover health.

### **LEF2082 APPLIED MICROBIOLOGY IN NURSING**

Identify the biological bases of microorganisms that cause infectious diseases prevalent in our environment, considering the structural, biochemical, and genetic properties involved in infectious diseases. Use adequate samples to isolate and identify microorganisms based on different microscopic, biochemical, and immunological tests.

### **LEF2032 MEDICAL SURGICAL PATHOLOGY**

Describe the specialized methods and procedures of surgical intervention, identifying the adequate tools for each patient and developing exhaustive and systematic assessments, favoring asepsis and antisepsis. Apply principles of health and safety in patient handling, infection control, and basic first aid to develop emergency procedures.

### **LEF2072 HEALTH PROMOTION PRACTICES**

Study and analyze health promotion and prevention in communities, by examining national regulations, epidemiological surveillance systems, and public health theories to develop actions that promote community health. Identify family needs through physiological and pathological assessments to design health promotion, disease prevention, healing, rehabilitation, and/or damage control strategies.

### **LEF2052 PSYCHOLOGY**

Analyze the antecedents and methodologies of psychology by identifying the factors and processes that intervene in social thinking and the construction of reality in individuals to apply the interaction and influence processes among social groups. Develop patient, family, and community assessment identifying real risks to develop health-promotion actions in order to prevent, cure, rehabilitate, and prevent psychological damage.

### **LEF3042 SURGICAL NURSING**

Identify the health problems that require surgical intervention through exhaustive and systematic evaluations based on nursing principles to design and apply interventions in accordance to the GPC. Analyze the regulations related to surgical handling to establish nursing diagnoses by applying said legislations.

**LEF3032 PEDIATRIC NURSING**

Identify the needs of pediatric patients through nursing diagnoses that include complete evaluations and risk factors during this vital cycle to apply adequate holistic care in healthy or ill children.

**LEF3022 PHARMACOLOGY IN NURSING**

Examine the theoretical-practical concepts of pharmacology, as well as knowledge in pharmacodynamics and pharmacokinetics, by analyzing the action mechanisms, indications, and contraindications of different drugs to identify interactions and side effects. Understand pharmacological legislation by analyzing their application in clinical cases to develop a safe, efficient, and specific drug administration for patients.

**LEF3012 PEDIATRICS IN NURSING**

Identify the principles of pediatric health and safety by analyzing theoretical-practical concepts of patient handling, control of infections, basic first aid, and emergency procedures in order to evaluate and understand the most appropriate health services and individualized programs to attend and improve the health of patients, family, or communities.

**LEF3052 MATERNAL-CHILD NURSING PRACTICES**

Examine different pregnancy complications by studying fetal disorders, as well as possible medical complications during pregnancy, to offer adequate care and prevent high-risk pregnancies. Apply theoretical-practical knowledge related to promoting mother-child health by developing actions that avoid medical complications in pregnancy and post-pregnancy.

**LEF3062 SURGICAL NURSING PRACTICES**

Develop exhaustive and systematic assessments by using nursing's theoretical-practical knowledge, nursing proaedeutics, and medical and surgical basics to identify the correct tools to use with each patient. Describe specialized methods and procedures to the patient in surgery by practicing asepsis and antisepsis for the individual's wellbeing. Apply health and safety principles in patient handling, control of infections, basic first aid, and emergency procedures to assess an individual's wellbeing.

**LEF3092 BIOETHICS AND LEGISLATION IN NURSING**

Identify when emotional support and professional judgment are necessary by analyzing legal codes and regulations to develop legally based solutions to ethical or moral dilemmas in nursing. Analyze the fundamental principles of ethics, legislation, and the humanities when evaluating patients to offer the highest quality services.

**LEF3102 TEACHING IN HEALTH**

Inform, educate, and supervise patients and their families in social groups, as well as health care providers, regarding health and nursing, using specific education techniques and teaching strategies with effective communication, to develop continuous improvements in health care.

**LEF3112 NURSING IN CRITICAL CARE**

Identify the different nursing roles, responsibilities, and functions for the integral care of patients in critical units; analyze regulations and legal codes - and the theoretical concepts of anatomy and physiology of the human body, pathophysiology, invasive techniques and procedures, and nursing as a scientific method - to develop with professionalism the discipline, and benefit an individual's needs.

**LEF3082 NURSING RESEARCH I**

Analyze research methodologies by studying fundamental principles, theories, and methods to solve problems related to nursing, based on scientific evidence.

**LEF3122 PEDIATRIC NURSING PRACTICES**

Design specific nursing care plans, evaluating health changes in children in conjunction with a multidisciplinary health team, to make decisions and propose solutions to identified problems.

**LEF3072 SELECT TOPICS I**

Examine vanguard topics related to nursing care, analyzing the latest trends in clinical practice to develop innovative proposals in care management.

**LEF4042 CARE MANAGEMENT**

Identify the characteristics of nursing administration and care management by analyzing the Mexican health system to apply group management techniques.

**LEF4032 NURSING IN MENTAL HEALTH AND PSYCHIATRY**

Identify the importance of nursing in mental health and psychiatry by analyzing the relation between clinical psychology, psychopathology, and nursing to develop interventions in primary, secondary, and tertiary care.

**LEF4062 CARE MANAGEMENT PRACTICES**

Identify philosophical and organizational aspects, as well as the features of nursing and care management direction, by analyzing the importance of the Mexican health system management, to apply group management techniques and ponder nursing care quality in health institutions.

**LEF4052 CRITICAL PATIENT NURSING PRACTICES**

Develop theoretical and practical knowledge of critical care nursing by analyzing different roles, responsibilities, and functions of nurses to propose solutions that contribute to care innovations. Evaluate patients in critical stages through interventions that benefit an individual's needs, and use the principles of health and safety to advance this discipline.

**LEF4022 MENTAL HEALTH AND PSYCHIATRY**

Examine the functioning of the central nervous system and the technical bases of neurobiology, by analyzing procedures, techniques, and principles of nursing in mental health and psychiatry, to establish the behavior and pathological processes of the nervous system, planning for pertinent care and primary, secondary, and tertiary assistance.

**LEF4012 SELECT TOPICS II**

Identify vanguard topics in nursing management through the latest administration trends to develop an efficient and effective nursing care.

**LEF4102 GERIATRIC NURSING**

Identify the health needs of geriatric patients through evaluation, diagnosis, and intervention of elderly patients to design the corresponding strategies; prevent complications derived from the degenerative process, and rehabilitation.

**LEF4082 NURSING RESEARCH II**

Develop solutions to current problems in nursing by utilizing scientific research methodology in order to generate health knowledge sustained by evidence and contribute to a person's wellbeing.

**LEF4122 GERIATRIC NURSING PRACTICES**

Elaborate diagnoses of geriatric patients by intervening and assessing older patients to identify their health needs in order to design care, prevention, recovery, rehabilitation, and damage control strategies under the principles of evidence-based nursing.

**LEF4112 MENTAL HEALTH AND PSYCHIATRY PRACTICES**

Identify the importance of nursing in mental health and psychiatry by analyzing the relation between clinical psychology, psychopathology, and nursing care to develop actions that contribute to mental health and the healing process in people in primary, secondary, and tertiary care levels.

**LEF4092 THANATOLOGY AND PALLIATIVE CARE**

Establish the importance of thanatology by analyzing its fundamentals and effects in order to apply adequate palliative care to terminal patients, contributing to a dignified death.

**LEF4072 SELECT TOPICS III**

Develop innovative proposals related to nursing by applying scientific research methodologies based on evidence to provide health solutions focused on community wellbeing.

**QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

# PHYSICS

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1062 SUPERIOR ALGEBRA

Establish solid mathematical foundations, proving and using math properties to model the phenomena of the applied sciences.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## MAT1042 ANALYTIC GEOMETRY

Apply the conics and basic math concepts, using their algebraic properties with a vectorial approach, to model relevant indicators.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT2012 CALCULUS II

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## ESPO022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## FIS2012 GENERAL PHYSICS II

Apply the laws that govern electric and magnetic phenomena using algebra and calculus to develop solutions to electromagnetic problems.

## FIS2022 GENERAL PHYSICS LAB II

Apply the fundamentals of electrostatics, electric properties of materials, electronic circuits and magnetism, using lab equipment and material to compare the results of experiments with theoretical models.

## LEX0132 FOREIGN LANGUAGE III \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

### **MAT2042 MATHEMATICAL ANALYSIS I**

Apply the derivative and integral of functions of a variable to solve engineering, finance, and the science problems using the multipliers method to develop solutions to optimization problems.

### **LFA2012 HEAT, WAVES AND FLUIDS**

Define the basic concepts and laws of wave motion, thermal phenomena and fluid, applying mathematical formulas to come up with solutions to heat, wave and fluids problems.

### **LFA2022 EXPERIMENTAL HEAT, WAVES AND FLUIDS**

Apply the basic principles governing the behavior of waves, thermodynamics and fluids, using lab equipment and material to compare experimental results with theoretical models.

### **MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

### **LAT2022 MATRIX THEORY**

Apply vectorial spaces, matrix theories and lineal transformations to solve real problems and model diverse phenomena, applying matrix theory in your major by using technological resources.

### **MAT3012 MATHEMATICAL ANALYSIS II**

Apply line integrals and multiple integrals of variable functions, modeling the infinite sums of their indicators to develop solutions to physics, finance and science problems.

### **MAT3022 PARTIAL DIFFERENTIAL EQUATIONS**

Apply the different methods of solving differential equations with boundary variables, analyzing variable methodologies to develop physical systems.

### **LFA3012 CLASSIC MECHANICS**

Apply the Lagrangian or Hamiltonian formulas and their relation to the conservation of energy and moment theorems, using calculus techniques to establish the dynamics of one or several particles.

### **LFA3052 MATHEMATICAL MODELS IN PHYSICS I**

Apply the fundamentals of advanced group theory mathe-

matics, complex variable functions, and vector operators, using the symmetries of physical systems, to develop solutions to complex problems that take into account a greater number of factors and interactions.

### **LFA3022 OPTICS**

Analyze optical phenomena in geometric, wave and corpuscular models using advanced mathematics and computer tools to identify multidisciplinary applications.

### **LFA3032 EXPERIMENTAL OPTICS**

Compare phenomena of interference, diffraction, reflection and refraction of light waves with theoretical models, using the corresponding instrumentation and methodologies to design optical applications projects.

### **LFA3042 PROFESSIONAL PRACTICES I**

Apply the knowledge acquired during your studies to establish a link between theory and practice, using the theoretical, methodological and experimental techniques to solve problems and situations of your major.

### **LFA3082 NUMERICAL ANALYSIS**

Develop programming language code, using algebra and calculus to analyze nonlinear, algebraic and differential equations.

### **LFA3102 MODERN PHYSICS**

Compare classic phenomena with quantum and relativity phenomena, using classical physics, quantum mechanics, and relativity theories to come up with solutions to modern physics problems.

### **LFA3112 EXPERIMENTAL MODERN PHYSICS**

Compare experimental data with theoretical models, using computerized monitoring techniques to design and create an integral, modern physics project.

### **LFA3072 MATHEMATICAL MODELS IN PHYSICS II**

Apply special functions and associated functions using mathematical properties to identify the different systems of classical and quantum physics.

### **LFA3062 ELECTROMAGNETIC THEORY**

Explain the fundamentals of Maxwell's electromagnetic theory by solving the electromagnetism equations to establish the connection between the microscopic and macroscopic properties of matter.

### **LFA3092 CLASSIC THERMODYNAMICS**

Analyze thermodynamic processes by identifying the char-

acteristics of the various physical systems and applying the corresponding equations to establish interdisciplinary problems present in the description of reversible and irreversible processes.

#### **LFA4042 COMPUTATIONAL PHYSICS**

Identify iterative and random techniques, using mathematical methods to create numerical solutions and comparing the theoretical models of computational physics.

#### **LFA4062 SOLID STATE PHYSICS**

Apply the fundamentals of crystallography and solid state physics, using Fermi's gas theory to classify the microscopic properties of crystalline systems and their relationship to material characterization experiments.

#### **LFA4032 QUANTUM MECHANICS I**

Apply the theoretical structure of quantum mechanics to simple systems of single interaction potential, using as a foundation Schrödinger's model to determine the calculation of experimentally observed values.

#### **LFA4012 STATISTICAL MECHANICS**

Categorize microscopic models of physical systems, using statistical methods to analyze macroscopic phenomena and their applications.

#### **LFA4022 PROFESSIONAL PRACTICES 2**

Apply the knowledge acquired during your studies to evaluate the solution to problems and situations of your major, using the theory, methodologies and experimental techniques that you learned, creating a link between theory and practice.

#### **LFA4052 SELECT TOPICS 1**

Examine electromagnetic radiation topics, using advanced mathematical methodologies to connect concepts to practice.

#### **LFA4072 COMPUTATIONAL PHYSICS II**

Analyze the results obtained by classical and quantum physical systems, using numerical solutions to modern physics problems to connect them to existing theoretical models.

#### **LFA4082 COMPUTATIONAL PHYSICS LAB**

Analyze scientific problems by applying different methods to build numerical models to solve them.

#### **LFA4112 QUANTUM MECHANICS II**

Apply the methodologies of quantum systems with their en-

tire complex interaction structure, using perturbation theory to study interactions in hydrogen atoms, using this system to identify the theoretical structure of quantum mechanics.

#### **LFA4092 SELECT TOPICS 2**

Analyze current topics in physical systems through the use of methodologies that connect these concepts with physics.

#### **LFA4102 SELECT TOPICS 3**

Identify current condensed matter topics by analyzing theoretical and experimental models, to establish the connection between the macroscopic and microscopic properties of matter.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

***\*UDLAP's General Education (GenEd) courses.***

# MEDICAL SURGEON

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

## **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

## **LMR1012 HISTOLOGY**

Describe the microscopic structures of cells, tissues, and organs that constitute the various apparatus and systems of the human body, observing cells in the lab to relate them to pathophysiology of disease.

## **LMR1022 CLINICAL BIOCHEMISTRY**

Identify the constitution of biomolecules, by observing their development in the lab, in order to establish their relation with the human body. Review the processes involved in molecular mechanisms -- and the chemical transformations responsible for biological processes that are part of an organism functions -- simulating those processes to generate better diagnostics in professional practice.

## **LMR1032 ANATOMY AND PHYSIOLOGY**

Evaluate the fundamentals of morphology and normal functioning of the organism, analyzing the structure and normal function of the different systems to obtain a comprehensive view on the physical structure of the human being.

## **LMR1042 EMBRYOLOGY AND GENETICS**

Outline the origin, growth, and development of a human being, and to assume a preventative position to promote adequate health habits, distinguishing the morphologic changes that may be present at different stages of the formation and development of a human being.

## **LMR1072 SIMULATION LAB I**

Present to the student a different learning environment to increase active participation and generate confidence in them to face reality as a health professional, through activities that introduce them to medical practice. Explain that mistakes made in the field are learning opportunities, reviewing their cause and establishing strategies to correct them.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

## **LMR1052 PHYSIOLOGY**

Understand the basics of medical physiology and the fundamentals of an organism's normal functions; analyze the disorders that occur with disease, using scientific reasoning with

a critical attitude to correlate the knowledge of physiology with an adequate diagnosis and treatment.

#### **LMR1062 CELLULAR AND MOLECULAR BIOLOGY**

Distinguish the cellular and molecular structure, organization, compartmentalization, and complexity needed to support vital phenomena in unicellular organisms and in the integration of organisms, correlating knowledge of cell and molecular biology with adequate diagnoses and treatments that understand the processes of cellular regulation and gene expression.

#### **LMR1082 HUMAN ANATOMY I**

Integrally learn human anatomy as a foundation to build semiological and clinical knowledge in the formative stage, identifying normal anatomical structures from different perspectives, including x-ray films.

#### **LMR1092 SIMULATION LAB II**

Represent, in pretend patients, different situations to foster skills and attitude changes in the student. Discover learning processes in an organized manner, starting with individual elements, through skills projected to this end. Explain that mistakes made in the field are learning opportunities, reviewing their cause and establishing strategies to correct them.

#### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

#### **LMR2012 MICROBIOLOGY AND PARASITOLOGY**

Identify the biological bases of microorganisms that cause infectious diseases common in our environment, considering mainly the structural, biochemical, and genetic properties intervening in the infectious disease process. To use adequate samples to isolate and identify microorganisms, based on different kinds of microscopic, biochemical, and immunological tests.

#### **LMR2022 GENERAL PHARMACOLOGY**

Interpret acquired knowledge on general pharmacology, action mechanisms, indications, and contraindications of different drugs used for pain, inflammation, and infection and develop abilities for rational prescription of drugs

#### **LMR2032 INTRODUCTION TO HEALTH SCIENCES**

Analyze the propaedeutic methodology based on the syndromes of different human pathologies, applying the technical foundations of the propaedeutic method to advance an etiologic, symptomatic, anatomopathologic, and integral diagnosis. To develop the abilities and skills needed for an integral examination of the nervous system to obtain complete medical records (inspection, palpation, percussion, and auscultation.)

#### **LMR2052 HUMAN ANATOMY II**

Handle the human anatomy as a foundation to build semiological and clinical knowledge in the formative licenciatura stage, identifying normal anatomical structures from different perspectives, including x-ray films and dissection techniques that include the thoracic cavity and abdomen.

#### **LMR2072 SIMULATION LAB III**

Devise close-to-real scenarios to modify behavior patterns and increase individual skills, decision-making, and complex interaction to understand the complexity of medical practice. Explain that mistakes made in the field are learning opportunities, reviewing their cause and establishing strategies to correct them.

#### **LMR2082 CLINICAL PHYSIOLOGY**

Use the physiological principles that govern the body, analyzing homeostatic mechanisms that work to maintain health, to identify the conditions that may alter an organism. Examine the processes that occur in health and sickness by analyzing the structural-functional relation of each organism's system and explain how to apply primary care. Handle the processes of each organism's system, associating their functions and importance for body homeostasis, in order to critically analyze choices in education, prevention, diagnosis, and adequate, effective, and ethical treatment in primary care.

#### **LMR2042 NUTRITION AND METABOLISM**

Understand the basic mathematical notation concepts used in descriptive analysis of data to use descriptive statistical methods in the analysis of social issues.

#### **LMR2062 CLINICAL IMMUNOLOGY**

Identify the mechanisms that the human body uses to respond, as specific and nonspecific protection, against infec-

tious agents or external factors, analyzing immunological aspects and the cellular relationship they establish.

#### **LMR2092 FAMILY AND COMMUNITY MEDICINE**

Analyze the theory of family and social community in their environment, focusing on primary health care and seeking to integrate these concepts to get a social commitment and professional attitude to promote, preserve, improve, restore, and rehabilitate individual and collective health.

#### **LMR2102 PRINCIPLES OF SURGERY**

Handle the fundamentals of basic surgical education, identifying the most adequate techniques and using scientific reasoning and critical thinking to correlate knowledge of surgical diseases to adequate diagnoses and treatments to allow the student to obtain a complete vision of the surgical environment to which a patient will be subjected.

#### **LMR2112 MEDICAL PHARMACOLOGY**

Apply the general principles of pharmacology in current therapeutics, evaluating choices and determining the use of drugs in relation to the organism in which they work, as well as their therapeutic indications, pharmacologic interactions, contraindications, and side effects.

#### **LMR2122 CLINICAL HEMATOLOGY**

Analyze functional changes present in diseases related to this specialty, using scientific reasoning and critical thinking to relate physiopathology to prevent or diagnose, treat, and rehabilitate.

#### **LMR2132 BASIC KNOWLEDGE EXAM**

Master the fundamental concepts of the basic area courses through bibliographical review and individual and group study sessions to demonstrate knowledge of those courses.

#### **LMR2142 SIMULATION LAB IV**

Analyze mistakes to turn them into learning opportunities, reviewing their cause and establishing strategies to correct them.

#### **LMR3012 BIOETHICS IN HEALTH SCIENCES**

Debate professional development based on codes and ethical principles, justifying legal regulations, laws, individual guarantees, human rights and cultural diversities, in order to assess the limitations and opportunities that favor a sustainable multidisciplinary approach.

#### **LMR3042 PSYCHIATRY**

Solve clinical cases to master the basics of psychiatry. Analyze the functional changes in mental disease through scientific

reasoning and a critical attitude to achieve an adequate correlation with physiopathology, diagnoses, treatment, and rehabilitation.

#### **LMR3052 GASTROENTOROLOGY**

Learn the foundations of internal medicine in gastroenterology by analyzing functional changes present in disease, using scientific reasoning and critical attitude to correlate physiopathology, prevention or diagnosis, treatment, and rehabilitation to achieve knowledge in handling gastrointestinal diseases. These situations will be tested in class through clinical cases that must be resolved by students individually or in a group.

#### **LMR3062 SURGERY**

Understand the complete anatomy of the colon, rectum, and anus as a basis to construct semiological and clinical knowledge, identifying the structure, interactions, functions, and main pathologies of each segment. To appraise each normal anatomical interaction from different aspects, including the most common radiology tools used in colo-proctology and urology, and dissection techniques that include the abdominal cavity and its interaction with the colon, rectum, and anus, as well as the urogenital system.

#### **LMR3072 OPHTHALMOLOGY**

Analyze the functional changes present in disease, applied to primary and community health care, to correlate the knowledge of physiopathology to prevent, diagnose, treat, and rehabilitate - by analyzing homeostatic mechanisms of the eye - to identify the visual system in health and sickness. Use different diagnostic methods and tests by analyzing the most frequent pathologies and adequately use them for each case. Utilize evidence-based medicine to solve clinical cases, integrating precise and clear medical files for adequate follow-up by other physicians. Compare the most frequent complications that may arise, describing the different pathologies, to adequately follow-up on each case, and determine when specific care is necessary.

#### **LMR3082 OTORHINOLARYNGOLOGY**

Master the fundamentals of otorhinolaryngology by reviewing the bibliography to identify the most common pathologies. Discern functional changes present in disease through adequate patient examination to obtain a correct therapeutic diagnosis. Use scientific reasoning so students can acquire a critical attitude to correlate the physiopathology, prevention or adequate diagnosis, treatment, and rehabilitation.

#### **LMR3092 CLINICAL FIELDS I**

Use the acquired bases to assess patients in outpatient con-

sultation areas, to achieve an adequate diagnosis and therapeutic approach for each one.

**LMR3102 CLINICAL CASES I**

Apply the basics of knowledge, by studying evidence-based medicine and fundamentals, to elaborate and present clinical cases, identifying the highest morbidity problems in primary care, using scientific reasoning and a critical attitude to correlate knowledge of epidemiology factors, levels of prevention, and adequate creation of a clinical case for any type of pathology in any age group to efficiently carry out diagnostic and therapeutic processes.

**LMR3032 SELECT TOPICS I**

Create a diagnosis using normal and pathological structures of individuals to interpret images and cuts produced by mammography units.

**LMR3022 PUBLIC HEALTH AND EPIDEMIOLOGY IN HEALTH SCIENCES**

Identify the importance of epidemiology by applying epidemiological time, place and person variables to study the health situation of a population. Evaluate health indicators of communities and populations, by identifying health problems to design programs that comply with a public health policy.

**LMR3112 SELECT TOPICS II**

Master the fundamentals of internal medicine in infectious diseases by analyzing functional changes present to relate knowledge in physiopathology, prevention or diagnosis, treatment and rehabilitation.

**LMR3122 NEUROLOGY**

Learn the fundamentals of neurology that apply to primary and community health care by analyzing functional variations evident in disease, using scientific reasoning and critical thinking to correctly use knowledge in physiopathology, prevention, diagnosis, treatment, and rehabilitation. Explain the physiological principles of the nervous system, by comparing normal and abnormal processes, to identify when an organism is healthy or diseased. Master the different diagnostic methods and tests, analyzing different pathologies to correctly use diagnostic tools. Establish appropriate and effective care for patients and their families through health education to prevent illness and restore health. Use evidence-based medicine to solve clinical cases, drafting a precise and clear medical file for proper follow-up. Understand the most common complications that may arise in studying different diseases to follow-up correctly on each case and, if necessary, to refer patients to a more adequate level of at-

tention. Integrate research and follow-up protocols, using the collected information to create products for teaching and dissemination.

**LMR3132 GASTRIC SURGERY**

Identify the main surgical illnesses of the digestive system to establish an anatomical, physiopathological, and surgical treatment correlation, studying clinical cases of diseases that require surgery as treatment, so the student can widen their medical and surgical knowledge.

**LMR3142 OBSTETRICS**

Integrate medical files, emphasizing obstetric data, stating precisely and clearly the most relevant information to fully understand individual or group cases. Apply physiological principles to solve clinical cases and provide medical attention when planning a pregnancy, during pregnancy, post-pregnancy, and lactation. Analyze the physiological processes during labor using clinical simulators to later apply them in real cases, minimizing human error. Identify the different complications of pregnancy through bibliographical review to determine high-risk pregnancies.

**LMR3152 DERMATOLOGY**

Analyze the functional changes present in disease, through scientific reasoning and critical thinking, to relate knowledge in physiopathology to reliable diagnosis, for an opportune treatment and/or adequate rehabilitation.

**LMR3162 NEPHROLOGY**

Analyze the functional changes of the urinary system as a clinical manifestation of nephrology diseases through their theoretical knowledge to develop the skills of a general physician.

**LMR3172 CLINICAL FIELDS II**

Interpret the acquired bases to evaluate patients in different disciplinary areas through guided clinical visits to provide better attention as a general practitioner

**LMR3182 CLINICAL CASES II**

Develop clinical skills by establishing ideal scenarios to answer, in an opportune and timely manner, an individual's needs, using elements of clinical reasoning and diagnostic strategies to solve problems in clinical cases and identify evidence-based medicine as a necessary tool in medical education and clinical practice.

**LMR4032 GERIATRICS**

Study the foundations of geriatrics in primary health care, knowledge of functional changes present in diseases, using scientific reasoning and critical attitude to correlate phys-

iopathology and prevention or diagnosis to be applied correctly in older adults.

#### **LMR4042 GYNECOLOGY**

Analyze the basic principles of anatomy, physiology, and physiopathology of different stages of the menstrual cycle by reviewing books to distinguish between physiological and pathological processes. Apply different diagnostic procedures of gynecology by analyzing lab tests for correct diagnoses. Describe the different stages of gynecological development by reviewing clinical cases to identify pathologies of the female reproductive system and how to handle them. Integrate medical files, emphasizing data of gynecology practice, clearly and precisely approaching the most relevant information to fully understand the individual or group cases assigned.

#### **LMR4052 ENDOCRINOLOGY**

Learn the fundamentals of endocrinology by analyzing the functional changes present in the most common endocrine diseases, using scientific reasoning and critical attitude and the knowledge in physiopathology to correctly prevent, diagnose, treat, and rehabilitate the patient. Name the physiological principles of endocrine glands, identifying their homeostatic mechanisms, to know the difference between health and disease in an organism. Explain the different diagnostic methods and tests to analyze endocrine pathologies to use the correct one. Establish appropriate and effective care for the patient and their family through adequate health education, to prevent disease and, if necessary, restore health. Use evidence-based medicine to solve clinical cases, integrating a clear and precise medical file for adequate follow-up. Distinguish the most common complications that may arise when analyzing different pathologies for adequate follow-up of each case and, if necessary, to refer patients to other health professionals.

#### **LMR4062 RHEUMATOLOGY**

Learn the basics of internal medicine in rheumatology through scientific reasoning and a critical attitude that correlates with knowledge of physiopathology for adequate prevention, diagnosis, treatment, and rehabilitation.

#### **LMR4072 PEDIATRICS I**

Evaluate normal pediatric patients by reviewing NOM-031-SSA-2010 for healthy child control, achieving at the same time the competencies to evaluate a normal child in primary care. Identify children who are outside normal standards, using growth and development percentiles, to refer them to other care levels.

#### **LMR4082 CARDIOLOGY**

Use acquired knowledge to analyze functional changes in the most common endocrine pathologies, and use scientific reasoning and critical attitude to apply physiopathology knowledge for a correct diagnosis and treatment. Explain the physiological principles of the cardiovascular system, comparing normal and abnormal processes, to identify sickness and health in an organism. Learn the proper use of different diagnostic tools, methods, and tests to analyze different pathologies. Establish an adequate and effective attention to patients and families, through health education, to prevent and, if necessary, restore health. Use evidence-based medicine to solve clinical cases, integrating a clear and precise medical file for adequate follow-up. Distinguish the most common complications that may arise in analyzing different pathologies for adequate follow-up in each case and, if necessary, to refer the patient to other specialists.

#### **LMR4092 CLINICAL FIELDS III**

Assess patients in the different disciplinary areas through clinical visits to solve clinical cases. Examine healthy patients, using questioning and clinical histories to achieve a correct physical exploration.

#### **LMR4102 CLINICAL CASES III**

Develop the clinical skills required in a doctor's professional activity, by training in ideal scenarios to achieve a critical ability and offer opportune and quality answers to an individual's health requirements, using elements of clinical reasoning and diagnostic strategies to solve problems in clinical cases, identifying evidence-based medicine as a necessary tool in medical formation and clinical practice.

#### **LMR4112 EMERGENCY MEDICINE**

Handle the basics of emergency medicine as an integrating factor that uses scientific reasoning and a critical attitude to correlate this knowledge to physiopathology to correctly diagnose, treat, rehabilitate, and propose an adequate handling of each case.

#### **LMR4022 RESEARCH METHODOLOGY IN HEALTH SCIENCES**

Develop a theoretical and/or experimental project, under the direction and advice of a professional, in any of the areas or topics, reviewing methodology to design a research protocol.

#### **LMR4122 SELECT TOPICS III**

Decide the level of attention a patient requires to identify the role of general practitioners regarding cancer, classifying the most common lesions in agreement with interna-

tional guidelines in oncology to outline the management of a cancer patient.

#### **LMR4132 TRAUMATOLOGY AND ORTHOPEDICS**

Master the fundamentals of traumatology and orthopedics, through a systematic study of its contents to correctly use them in professional practice. Analyze the changes in the muscle-skeletal or neuromuscular system, systematically using scientific reasoning and a critical attitude to correlate this knowledge to physiopathology, prevention or diagnosis, treatment, and rehabilitation.

#### **LMR4142 PEDIATRICS II**

Interpret the fundamentals to assess pediatric syndromes by reviewing literature and solving clinical cases to provide diagnoses and therapy. Analyze the functional changes that may arise in pediatric diseases, using scientific reasoning to achieve a critical attitude to correlate knowledge of general pediatrics to adequate diagnosis and treatment.

#### **LMR4152 PNEUMOLOGY**

Analyze the most common functional changes present in respiratory diseases, using scientific reasoning and a critical attitude to correctly diagnose and treat them. Utilize different diagnostic methods and tests in the analysis of respiratory diseases to apply the most adequate one. Establish proper and effective care for the patient and their family through adequate health education, to prevent illness and restore health. Use evidence-based medicine to solve clinical cases, integrating a precise and clear medical file for proper follow-up. Understand the most common complications that may arise, by analyzing different diseases, to follow-up correctly on each case, and if necessary to refer to a more adequate level of attention.

#### **LMR4162 PATHOLOGICAL ANATOMY**

Describe the foundations of cellular and tissue morphology in pathological anatomy, using lab tools to understand cell lesions. Analyze functional, cellular, and molecular variations present in diseases, using scientific reasoning and a critical attitude that relates anatomical-clinical knowledge and physiopathology.

#### **LMR4172 CLINICAL FIELDS IV**

Master the fundamentals of patient evaluation in different disciplinary areas by reviewing the clinical guides to increase knowledge. Achieve competence in evaluating a patient's health using evidence-based medicine to minimize mistakes in a real world situation.

#### **LMR4182 CLINICAL CASES IV**

Develop the required clinical skills in a doctor's professional activity through training in ideal scenarios, as well as the development of critical skills to provide an opportune and quality answer to an individual's needs, applying elements of clinical reasoning and diagnostic strategies to solve clinical case problems. Use evidence-based medicine as an indispensable tool in medical education and clinical practice, and as a necessary skill to become competent in identifying the highest morbidity cases in primary care, and to use scientific reasoning and a critical attitude to relate knowledge of epidemiology factors and levels of prevention on any type of pathology on any age group.

#### **LMR4192 PRE-GRADE INTERNSHIP ROTATION I**

Apply propaedeutic methodology based on syndromes of different pathologies to restore health in a patient. Use the theoretical fundamentals of the propaedeutic method, advancing to an etiologic, symptomatic, anatomical, pathological, and comprehensive diagnosis for correct patient care. Use principles of effective communication - transmission, interpretation, expression, and understanding of oral and written language - to complete clinical histories by developing clinical skills (inspection, palpation, percussion, and auscultation) to avoid near misses and/or sentinel effects in hospitals.

#### **LMR4202 PRE-GRADE INTERNSHIP ROTATION II**

Apply propaedeutic methodology based on syndromes of different pathologies to restore health in a patient. Use theoretical fundamentals of the propaedeutic method, advancing to an etiologic, symptomatic, anatomical pathological and integral diagnosis to correctly patient care. Use the principles of effective communication - transmission, interpretation, expression and understanding of oral and written language - to complete clinical histories by developing clinical skills (inspection, palpation, percussion, and auscultation) to avoid near misses and/or sentinel effects in hospitals. Apply professional and bioethical values to medical problems to handle medical information confidentially.

#### **LMR4212 SUPERVISION AND EVALUATION OF SOCIAL SERVICE**

Explain the branches of medicine, such as internal medicine, ob-gyn, pediatrics, and surgery when presenting final exams of each module and state the principles of each branch of medicine.

# NANOTECHNOLOGY AN MOLECULAR ENGINEERING

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **FIS1012 GENERAL PHYSICS I**

Apply the laws of Newton mechanics using algebra and calculus techniques to solve mechanics problems.

## **FIS1022 GENERAL PHYSICS LAB I**

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the rela-

tionship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

#### **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

#### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **FIS2012 GENERAL PHYSICS II**

Apply the laws that govern electric and magnetic phenomena using algebra and calculus to develop solutions to electromagnetic problems.

#### **FIS2022 GENERAL PHYSICS LAB II**

Apply the fundamentals of electrostatics, electric properties of materials, electronic circuits and magnetism, using lab equipment and material to compare the results of experiments with theoretical models.

#### **QUI2032 ORGANIC CHEMISTRY LAB I**

Understand different chemical reactions by observing good lab practices and reagent handling to obtain organic compounds. Select the physical and instrumental methods of analysis to identify an organic compound, reviewing the physical and spectroscopic data obtained.

#### **QUI2052 CHEMICAL THERMODYNAMICS LAB**

Analyze heat transfer process data by creating and correctly interpreting graphs to obtain information on thermodynamic parameters.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **QUI2022 ORGANIC CHEMISTRY II**

Identify the main reactions in organic chemistry and their mechanisms using chemical equations to analyze how organic compounds are transformed. Apply nuclear magnetic resonance spectroscopy, interpreting the spectra to understand the structure of a molecule.

#### **QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

#### **LIM2012 MATERIAL SCIENCE AND ENGINEERING I**

Explain the effect of engineering materials' microscopic properties with their macroscopic physical properties, by analyzing the different phenomena that support them, to understand the use of a specific material in a certain application.

#### **MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

#### **QUI2102 ANALYTICAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to identify and quantify a substance's components through different analysis methods, to manipulate the material and lab equipment used in analytical chemistry.

#### **QUI2082 INORGANIC CHEMISTRY LAB I**

Identify the relationship between the structure of an inorganic compound with its physical and chemical properties to interpret its electronic structure and molecular geometry through appropriate classification and correct selection of the preparation and characterization method.

#### **QUI2092 ANALYTICAL CHEMISTRY**

Identify a substance's components through different analysis methods, for the separation, identification and determination of the ions and molecules that form a material.

#### **QUI2072 INORGANIC CHEMISTRY I**

Understand the concepts of chemical bonding, electronegativity, molecular symmetry, group theory applied to chemistry, molecular orbitals and atomic structure of ionic and molecular solids, as well as Pearson's acid-base theory and the periodic properties of metals by correctly and accurately analyzing current inorganic chemistry concepts to interpret the physical and chemical properties of inorganic compounds.

#### **LNM2012 SYNTHESIS AND CHARACTERIZATION OF NANOMATERIALS**

Classify nanomaterials based on their composition, dimensionality and shape, identifying the different synthesis methods (chemical and physical) and characterization to exam-

ine the physical properties and potential uses of each type of nanomaterial.

#### **QUI3012 INSTRUMENTAL ANALYSIS**

Manage the different instrumental analysis techniques by using characterization methods and techniques to analyze and identify materials.

#### **QUI3032 PHYSICAL CHEMISTRY**

Apply the reaction rate law in homogeneous systems by using experimental data from chemical reactions to describe their kinetic behavior. Describe the properties of electrochemical cells, the interfaces and the colloidal systems using thermodynamic fundamentals to explain their stability and the conditions that affect it.

#### **QUI3022 INSTRUMENTAL ANALYSIS LAB**

Apply common instrumental analysis methods in industry and research, using different methods and techniques to characterize materials.

#### **LNM3022 NANOMATERIAL CHARACTERIZATION LAB**

Identify safety rules and experimental techniques, applying lab materials and chemical substances to understand the nanomaterials characterization process.

#### **QUI3042 PHYSICAL CHEMISTRY LAB**

Determine the parameters that govern the rate of reactions in homogeneous systems through known experimental methods to evaluate their kinetic behavior.

#### **LNM3012 SYNTHESIS OF NANOMATERIALS LAB**

Use lab materials and chemical substances, understanding and describing safety rules and experimental techniques to define the nanomaterial preparation process.

#### **LNM3032 PROFESSIONAL PRACTICES I**

Identify the skills you acquired in your studies and from your work in multidisciplinary teams, analyzing the environment where the internship is carried out to develop solutions to nanotechnology problems.

#### **LFA3102 MODERN PHYSICS**

Compare classic phenomena with quantum and relativity phenomena, using classical physics, quantum mechanics, and relativity theories to come up with solutions to modern physics problems.

#### **LFA3112 EXPERIMENTAL MODERN PHYSICS**

Compare experimental data with theoretical models, using computerized monitoring techniques to design and create an integral, modern physics project.

#### **QUI3062 INORGANIC CHEMISTRY LAB II**

Evaluate the most appropriate preparation routes and reagents by developing experimental techniques in the lab to design new inorganic materials, coordination and organometallic compounds, catalysts and bioinorganic systems.

#### **LNM3052 SENSOR AND MOLECULAR ELECTRONICS LAB**

Classify lab materials and chemical substances used in the study and design of nanostructured materials, identifying the preparation methods, and complying with established standards of quality and safety to build useful technological devices.

#### **QUI3052 INORGANIC CHEMISTRY II**

Identify the different types of coordination compounds and organometallic compounds according to the IUPAC rules, using electronic theories and bonding interaction properties to describe the reaction mechanisms in which organometallic catalysts participate, to design efficient chemical processes.

#### **LNM3042 SENSOR AND MOLECULAR ELECTRONICS**

Identify the different molecular, supermolecular and supramolecular systems by analyzing their scope and limitations, as well as the strategies of design, synthesis and characterization to build and apply molecular machines, molecular sensors, biomaterials and molecular electronic devices.

#### **LNM4012 SURFACE PHYSICAL CHEMISTRY**

Identify the fundamental concepts of physical chemistry, examining the applied theories of adsorption processes, electrochemistry and reaction mechanisms, as well as the analysis methods to apply them when interpreting surface phenomena.

#### **LNM4022 SURFACE PHYSICAL CHEMISTRY LAB**

Apply the most appropriate synthesis techniques by examining the analysis techniques to study surface phenomena, catalysts and electrochemical electrode processes.

#### **LNM4042 NANOBIOTECHNOLOGY LAB**

Develop skills in the isolation, identification and handling of biomolecules by analyzing different methods and lab techniques to understand new nanomaterials with different biological and non-biological applications.

#### **LNM4032 NANOBIOTECHNOLOGY**

Identify each of the different important biomolecules in the cell and cellular structures that exist in nature with the possibility of being used as nanostructures by examining the biophysical and biomolecular characteristics of the biomolecules and functions in the unicellular and multicellular or-

ganisms to design new nanostructured models and overproduction strategies using genetic engineering methods.

#### **LNM4062 PROFESSIONAL PRACTICES 2**

Apply Nanotechnology and Molecular Engineering techniques and concepts by carrying out specific projects in the different areas of nanotechnology and evaluating the resources available to develop solutions to real problems.

#### **LNM4052 SELECT TOPICS 1**

Analyze molecular engineering topics, integrating concepts and theories to develop solutions to specific problems.

#### **LNM4122 MOLECULAR ENGINEERING AND SIMULATION**

Interpret macro, micro and nanostructured systems using software programs in a professional, ingenious and correct way to develop molecular engineering, nanoscience and nanotechnology simulations systems.

#### **LNM4092 NANOTECHNOLOGY AND APPLIED MOLECULAR ENGINEERING LAB**

Categorize nanomaterial preparation methods in a precise, clear and safe way, applying the current regulations to implement them in technological and scientific research projects.

#### **LNM4082 NANOTECHNOLOGY AND APPLIED MOLECULAR ENGINEERING**

Identify specific areas of nanotechnology that can be used successfully and innovatively, through comparative analysis and estimation backed by scientific evidence to develop solutions specific energy, health, and environmental problems, among others.

#### **LNM4072 NANOTECHNOLOGY AND SOCIETY**

Analyze the scope and limitations of nanoscience and nanotechnology in society by assessing the risks and benefits of these technologies as applied in each of the major development axes, establishing their impact on social and economic development.

#### **LNM4102 SELECT TOPICS 2**

Analyze applied nanotechnology topics by integrating the techniques from a current and informed point of view to develop proposals for applications.

#### **LNM4112 SELECT TOPICS 3**

Analyze nanoscience and nanotechnology topics by evaluating new techniques and materials to identify advances in the area.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

### **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

#### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# PHARMACEUTICAL AND BIOLOGICAL CHEMISTRY

## ADM1012 MANAGEMENT FUNDAMENTALS

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## QUI1022 GENERAL CHEMISTRY LAB

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writ-

ing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## QUI1042 ORGANIC CHEMISTRY LAB I

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## QUI1032 ORGANIC CHEMISTRY I

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

## QUI2012 BIOCHEMISTRY I

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge

**QUI2032 ORGANIC CHEMISTRY LAB II**

Understand different chemical reactions by observing good lab practices and reagent handling to obtain organic compounds. Select the physical and instrumental methods of analysis to identify an organic compound, reviewing the physical and spectroscopic data obtained.

**QUI2052 CHEMICAL THERMODYNAMICS LAB**

Analyze heat transfer process data by creating and correctly interpreting graphs to obtain information on thermodynamic parameters.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**QUI2022 ORGANIC CHEMISTRY II**

Identify the main reactions in organic chemistry and their mechanisms using chemical equations to analyze how organic compounds are transformed. Apply nuclear magnetic resonance spectroscopy, interpreting the spectra to understand the structure of a molecule.

**QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

**LBI2072 CELLULAR BIOLOGY**

Identify the basic structures of the cell, reviewing its components and interrelation to discover and distinguish its function. Discover the relationship of the different organelles, their functions, and their structure at a cellular and organism level and relate it to the state of health or pathology of the organism, integrating the information in function of each one in a cellular context.

**QUI2062 BIOCHEMISTRY II**

Identify the fundamentals of biochemistry by reviewing the general metabolism of living beings to interpret their interrelations with regulation, growth and differentiation at the cellular level. Describe the relationships of metabolism and its deficiencies by identifying detectable metabolic intermediaries for clinical interpretation.

**MAT2062 INFERENCE STATISTICS**

Apply various statistical techniques using different statistical inference methods to estimate parameters that contribute to decision-making in chemistry, biology and social sciences.

**LFB2012 PHARMACOLOGY**

Describe the pharmacological bases of current therapy by using pharmacology-specific terminology to identify the effects of medications. Discuss the current pharmacology challenges in discovering new drugs, by learning their behavior in the body and the circumstances that modify its response to pharmacological treatment, to propose new optimization methods for pharmacotherapies.

**LBC2022 MICROBIOLOGY LAB**

Develop microbiological techniques by practicing methods used in a lab to isolate, identify, cultivate and control microorganisms.

**QUI2102 ANALYTICAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to identify and quantify a substance's components through different analysis methods, to manipulate the material and lab equipment used in analytical chemistry

**LBC2012 MICROBIOLOGY**

Identify the fundamentals of morphology and functioning of microorganisms, reviewing their structure and metabolism to analyze phenomena related to the world of microorganisms. Describe the relationships between microorganisms and the environment, reviewing their physiological activities in order to establish the beneficial and damaging effects.

**QUI2092 ANALYTICAL CHEMISTRY**

Identify a substance's components through different analysis methods, for the separation, identification and determination of the ions and molecules that form a material.

**QUI3012 INSTRUMENTAL ANALYSIS**

Manage the different instrumental analysis techniques by using characterization methods and techniques to analyze and identify materials.

**LBC3022 ANATOMY AND PHYSIOLOGY**

Identify the tissues, organs, and systems of an organism with its physiological functions, through the review and analysis of its parts and characteristics, to correlate them with the person's state of health or with a diagnosis or treatment to an illness.

### **LBI3042 MOLECULAR BIOLOGY**

Identify the basics of molecular biology by reviewing the structure of macromolecules, their functional consequences and the mathematical description of their properties to interpret and analyze their participation in cellular metabolism, their control and development of the cell and the organism.

### **QUI3032 PHYSICAL CHEMISTRY**

Apply the reaction rate law in homogeneous systems by using experimental data from chemical reactions to describe their kinetic behavior. Describe the properties of electrochemical cells, the interfaces and the colloidal systems using thermodynamic fundamentals to explain their stability and the conditions that affect it.

### **QUI3022 INSTRUMENTAL ANALYSIS LAB**

Apply common instrumental analysis methods in industry and research, using different methods and techniques to characterize materials.

### **LBC3032 ANATOMY AND PHYSIOLOGY LAB**

Apply the basic principles of anatomy and human physiology through experimental work that reflects their functionality, to develop practical abilities that allow you to interpret physiological function tests of an organism and its anatomy.

### **QUI3042 PHYSICAL CHEMISTRY LAB**

Determine the parameters that govern the rate of reactions in homogeneous systems through known experimental methods to evaluate their kinetic behavior.

### **LFB3012 PROFESSIONAL PRACTICES 1**

Apply theoretical and practical knowledge, through practical activities of the reality of the country, in order to use scientific reasoning with a critical attitude.

### **LFB3032 PHARMACOTHERAPY**

Apply the general principles of pharmacology in current therapy, drug selection and use, depending on the organism's system, as well as their main therapeutic indications, pharmacological interactions, contraindications and adverse effects, to predict the modification of pathological processes and the undesirable effects they cause. Analyze patients' therapeutic medicine through an integral view of the patient and his/her condition, as well as the drug characteristics and effects to use them properly.

### **LBC3092 PATHOPHYSIOLOGY**

Identify the basic mechanisms and pathological processes, reviewing the normal function of organs and systems of the body, to interpret lab results and relate them to different illnesses and their specific mechanisms that produce clinical manifestations.

### **LBI3092 GENETICS**

Identify heredity principles, as well as the causes of genetic variation of living beings, through the analysis of their components and variables to interpret genetic studies.

### **LBC3072 IMMUNOLOGY**

Describe the structure and function of the molecules and cells that participate in the human's immune response, reviewing and analyzing their composition, functionality and characteristics to relate the conceptual and operational handling of the main types of immune response, stages, cells and tissue involved in immune illnesses.

### **LFB3022 PHARMACOLOGY LAB**

Integrate the concepts of pharmacology through laboratory practices to demonstrate the effect of drugs in animals and in humans.

### **LBC3052 MOLECULAR METHODS LAB**

Apply the fundamentals of biochemistry, molecular and cellular biology to develop and execute detection tests, quantification and diagnosis to solve problems by using equations and methodologies.

### **LFB3042 MEDICAL-DIAGNOSTIC MICROBIOLOGY**

Identify the most important infectious syndromes (viral, bacterial, fungal and parasitic) to humans, reviewing the most recent information of each clinical syndrome and the most appropriate pharmacological treatment in each case to isolate and identify these pathogens.

### **LFB4042 BIO PHARMACY AND PHARMACOKINETICS**

Analyze the relationship between the physicochemical characteristics of a drug, the pharmaceutical form in which it is presented and its interaction with the organism, by describing the concepts of bioavailability and the factors that determine it to propose biopharmaceutical strategies to optimize the pharmacotherapeutic action of medicines and methodologies geared towards studies of bioequivalence in generic-interchangeable drugs. Explain the pharmacokinetic and pharmacodynamic events that follow the administration of a drug by calculating the most important pharmacokinetic parameters of a given patient, to use this knowledge in the individualization of pharmacotherapies and to predict changes in the pharmacokinetics parameters of patients with certain diseases, or who are treated with specific drug groups.

### **LFB4052 HOSPITAL AND COMMUNITY PHARMACY**

Organize pharmaceutical services in hospitals and community pharmacies by applying the principles of pharmaceutical care and the rational use of medicines, as well as compliance with current regulations, to contribute to the health care of patients as members of the health team. Plan programs and

initiatives to promote health, disease prevention and pharmacotherapeutic monitoring, applying knowledge related to drug preparation, distribution, administration and monitoring to promote the safe and appropriate use of drugs.

#### **LFB4032 PROFESSIONAL PRACTICES 2**

Evaluate solutions to problems or areas of opportunity from an academic perspective through professional practices, to improve the skills, attitudes and experiences necessary for this profession.

#### **LFB4012 PHARMACEUTICAL TECHNOLOGY I**

Apply good pharmaceutical practices related to the design and manufacturing of medicines, using elaboration and control techniques of medicines prepared in the hospital pharmacy and in the pharmaceutical industry, to assure the quality of the medicines as well as their rational use to benefit society.

#### **LFB4022 SELECT TOPICS 1**

Analyze the most recent and significant advances in biotechnology through the identification of biological, chemical, technological, therapeutic and toxicological principles and processes involved in the development and evaluation of biotechnological pharmaceutical products, to contribute to the development of products that are innovative, effective and safe, to improve the patients' quality of life.

#### **LBC4072 TOXICOLOGY**

Classify harmful substances to which living organisms are exposed in the environment, through the identification of their origin, grade of toxicity, toxicokinetics and toxicodynamics, to apply national and international toxicology guidelines in different professional development areas. Explain the methodology used to identify, characterize and evaluate the biological consequences of toxic or potentially toxic compounds of various origins, determining their exposure characteristics and system involved, to prevent toxicological risks and intoxications.

#### **LFB4072 PHARMACEUTICAL TECHNOLOGY LAB**

Acquire skills and practical knowledge when manufacturing pharmaceutical medicines, applying the technological tools of the pharmaceutical industry to produce safe and effective medicines.

#### **LFB4062 PHARMACEUTICAL TECHNOLOGY II**

Analyze the processes to manufacture liquid drugs, using medicine elaboration and control techniques to assure their quality and proper use

#### **LFB4082 SELECT TOPICS 2**

Describe topics in development of new pharmaceutical products, integrating knowledge and methodologies to obtain, design, formulate, evaluate, register, monitor, regulate and optimize them, to contribute to the implementation of new therapeutic alternatives that promote the rational use of medicines.

#### **LFB4092 SELECT TOPICS 3**

Evaluate the most recent and significant advances in pharmacoepidemiology, defining the principles and methods to design, implement and evaluate programs that evaluate the use of drugs, their adverse reactions and their economic impact, to contribute to decision making regarding drugs and other health technologies in different scenarios: hospital pharmacy, community pharmacy, industry and national health systems.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing

socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses*



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# ACADEMIC PROGRAMS

# SCHOOL OF SOCIAL SCIENCES

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# ANTHROPOLOGY

## **LEA1012 ARCHEOLOGY**

Define the basic archaeological concepts and the potential of culture in relation to the reconstruction of the cultural past by reviewing and discussing texts and data on archeology development to determine its link with the other anthropological areas.

## **LEA1022 CULTURE AND SOCIETY**

Identify the fundamental concepts of anthropology, comparing the social life of human communities, to define cultural diversity.

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the magna carta, in order to understand the priority role that they possess when making legal orders.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LEA1052 VISUAL ANTHROPOLOGY**

Apply photographic techniques as an anthropological documentation tool through its application in the field, to elaborate and interpret images as socio-cultural phenomena.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters

that contribute to decision-making in different social science areas.

## **LEA1042 HUMAN EVOLUTION**

Identify evolutionary mechanisms, such as natural selection and genetic drift, using fossil and archaeological evidence to infer the biological and cultural development of humans during the Pleistocene Era.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LEA1032 PRE-STATE SOCIETIES OF MESOAMERICA**

Identify the archaeological evidence linked to early cultural evolution in Mesoamerica, reviewing relevant literature to compare the agricultural transition processes, the emergence of social inequality, and the beginnings of urbanism in its various regions.

## **LEA2032 CITY AND STATE IN MESOAMERICA**

Compare the stages of the Classic and Post-classic Eras in political, economic, social and ideological terms, reviewing and interpreting the archaeological and ethno-historical record to infer the variables involved in the creation of complex societies in the various cultural areas of Mesoamerica.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LEA2022 HISTORICAL ETHNOLOGY**

Interpret the historical development of Mexican indigenous peoples from the colonial period to the 20th century, immersing yourself in Spanish colonialism to identify the changes experienced by the native population over the centuries.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to com-

municate with native speakers in everyday and academic situations.

#### **LEA2012 LINGUISTICS**

Recognize the different fields of linguistics by identifying different contexts of speech to establish the recognition of its application in other branches of anthropology.

#### **LEA2042 ANTHROPOLOGICAL THEORY**

Compare the conceptual frameworks of the theoretical trends of anthropological thought, especially of the 20th century, through the comparative and critical study of the main protagonists, ideas and contributions, to identify how professional anthropology was established.

#### **LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

#### **LEA2052 STUDIES OF MATERIAL CULTURE**

Identify the main techniques to study culture by the archaeological or ethnographic analysis of artifacts, to construct and exemplify different ways of life.

#### **LEA2062 TECHNICAL ILLUSTRATION FOR ANTHROPOLOGY**

Construct an archaeological and/or ethnographic record, using manual and electronic drawing techniques of the different aspects that require to be represented in fieldwork with lab equipment, to apply the basic concepts of technical illustration.

#### **LEA2082 FIELD METHODS IN ARCHEOLOGY**

Identify the basic archeology methods and techniques, reviewing their assumptions and practice and using specialized field research instruments.

#### **LEA2072 FIELD METHODS IN ETHNOLOGY**

Design a logically structured methodological approach, identifying the social situation and transforming it into an anthropological research problem, to practice ethnographic methods and its techniques; understand the importance of ethical commitment with individuals, information, and dissemination of research results.

#### **LEA3022 INDIGENOUS MEXICO**

Examine the general panorama of the indigenous peoples of Mexico, discussing regionalization, emphasizing the difference between ethnic and linguistic groups, and distinguishing the most important themes that Mexican ethnography has taken to identify an outlook of the theoretical frameworks that have permeated ethnographic work in Mexico.

#### **LEA3032 MYTH, MAGIC AND RELIGION**

Identify some of the most representative theoretical perspectives, studying the most relevant anthropological empirical cases on myth, magic and religion to define the cultural diversity of the five continents.

#### **LEA3052 NÁHUATL**

Identify the characteristics of Nahuatl, using linguistic tools to analyze the historical documents written in that language and use them in fieldwork with communities that speak some of its variants.

#### **LEA3012 ORIGINS OF CIVILIZATION**

Identify environmental, social, technological and cultural changes through the archaeological and historical evidence of Neolithic Africa, Asia and Europe, to define the rise of social inequality and the development of first generation cities and states in the Old World.

#### **LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

#### **LEA3042 PROFESSIONAL PRACTICES 1**

Apply the theoretical and methodological knowledge acquired in the classroom, using it in public, social and/or private areas to develop professional experience in interpretative management of empirical data.

#### **LEA3082 APPLIED ANTHROPOLOGY**

Evaluate the different trends of applied anthropology, through the application of their field methods, to identify and manage social problems to understand if their contribution will solve them.

#### **LEA3112 URBAN ANTHROPOLOGY**

Compare different approaches of urban anthropology, understanding their methodological implications to analyze current urban problems.

#### **LEA3092 STRATEGIES FOR CULTURE DISSEMINATION**

Design products to disseminate anthropological knowledge to diverse audiences, creating digital strategies to promote the value of culture in contemporary contexts.

#### **LEA3122 WORLD ETHNOLOGY**

Identify the world's main cultural areas, identifying their representative sociocultural features to carry out comparative ethnological studies.

**LEA3102 HUMAN OSTEOLOGY**

Identify the basic concepts of human remains, studying relevant literature and handling human bones to create a detailed view of the relevance of the study of ancient skeletons when developing cultural inferences.

**LEA3072 CULTURAL HERITAGE**

Analyze the social, economic and ideological usefulness of cultural heritage, both material and immaterial, by benchmarking concrete cases at a global level to assess their current importance.

**LEA3062 SELECT TOPICS 1**

Examine archeology topics, applying theoretical, methodological and/or technical tools to identify changes in current social organizations.

**LEA4012 LEGAL ANTHROPOLOGY**

Evaluate the socio-cultural dimension of legal phenomena of minorities through case studies in both national and international contexts, to identify their specifics and situations when applying legal anthropology.

**LBI4012 ECOLOGY AND ENVIRONMENTAL CHANGE**

Relate the structure and function of ecosystems through the analysis of interactions between their different components (biotic and abiotic) to evaluate human effects and their consequences on ecosystems, specifically in climate change; evaluate the global measures of remediation, mitigation

**LHC4022 MUSEOGRAPHY**

Analyze specific issues facing museography in works that have technical and environmental requirements that respond to recent trends in art and culture, designing and setting up an exhibition to determine the complexity of a museographer's work.

**LEA4032 PROFESSIONAL PRACTICES 2**

Apply the theoretical and methodological knowledge acquired in the classroom, through professional activities in public, private or social areas to develop skills that are useful in problem diagnosis, planning, evaluation and intervention in professional life.

**LEA4022 SELECT TOPICS 2**

Analyze current cultural anthropology issues using theoretical, methodological or technical anthropology tools to interpret their practical applications.

**LEA4072 ECONOMIC ANTHROPOLOGY AND GLOBALIZATION**

Compare the theoretical trends related to the investigation of the production, circulation, exchange, distribution, use and consumption of goods in past and contemporary soci-

eties, through case studies to explain the processes that create inequality and its implications on social development and globalization.

**LEA4062 CULTURE AND CLIMATE CHANGE**

Analyze the role of culture in the adaptation of human groups to climate change, by studying archaeological and ethnographic cases to interpret the contribution of anthropology to the current debates on this issue.

**LEA4052 GENDER AND CULTURE**

Evaluate different theoretical currents on gender in extinct and current culture research, analyzing and discussing texts in order to identify the importance of the gender division categories in social organizations, the construction of identity, and transformations and cultural continuities of human communities.

**LEA4042 ANTHROPOLOGICAL PROJECTS**

Apply the research design methodology, analyzing and interpreting empirical data to produce an academic document.

**LEA4082 SELECT TOPICS 3**

Analyze current topics in cultural history, comparing the theoretical positions created around it to evaluate current social problems.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

## GENERAL STUDIES ELECTIVE IN HUMANITIES \*

### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# POLITICAL SCIENCE

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the magna carta, in order to understand the priority role that they possess when making legal orders.

## **LPT1012 FUNDAMENTALS OF POLITICAL SCIENCE**

Identify the fundamental concepts of political science (State, government, power, authority, legitimacy, democracy, etc.) by analyzing the structures, processes and results that underpin political phenomena, to understand different perspectives and methodologies that explain the complexity of governments, in addition to the political reality of contemporary society.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LRI1012 POLITICAL AND SOCIAL THEORY I**

Identify the central problems and themes of political and social theory in different historical contexts, analyzing the classical authors who cemented the foundations of politics as a science, as well as studies on power, society and the State, to compare government interpretation and sociopolitical phenomena paradigms.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LRI1022 FUNDAMENTALS OF INTERNATIONAL RELATIONS**

Identify the most important international relations concepts, analyzing the interaction of international actors to evaluate political processes and their interconnection with economic, social and cultural processes in different parts of the world.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LRI1042 CONTEMPORARY MEXICAN POLITICS**

Identify the evolution of the Mexican political system from the Mexican Revolution to date, by analyzing its political, social and economic processes and the actors involved, thus developing contextual tools and interpreting national sociopolitical problems.

## **LRI1032 POLITICAL AND SOCIAL THEORY II**

Understand modern political and social theories, as well as the axes of the discussion around crucial subjects of current sociopolitical analysis by examining the main thinkers in this field, to understand the wide range of perspectives.

## **LDE2022 HUMAN RIGHTS**

Interpret the concept of human rights in theory, legislation and jurisprudence, through its categorization in order to examine the different defense methods in the national and international legal system.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LRI2022 HISTORY OF INTERNATIONAL RELATIONS**

Examine the development of international relations from its origins to the present, by analyzing different international systems to consider past experiences as a participant in contemporary international relations.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and writ-

ten manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LRI2012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

#### **LPT2012 COMPARATIVE POLITICS**

Compare political processes and their interconnection by analyzing economic, social and cultural processes in different parts of the world to explain the causes of the crisis of different systems today.

#### **LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

#### **LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

#### **LPT2032 SOCIAL MOVEMENTS AND CIVIL SOCIETY**

Identify the internal and external factors of the main political social and economic relations of society to examine the different causes that determined the current situation between civil society and the State through the comparative analysis of social movements and organizations.

#### **LPT2022 PARTIES AND PARTY SYSTEMS**

Identify the fundamental characteristics of party systems and their dimensions to examine their current and past peculiarities, analyzing specific theories and cases in Mexico and the world.

#### **LPT2042 COMPARATIVE POLITICAL SYSTEMS**

Analyze concrete forms of government and politics, by classifying and categorizing the different political systems in the world, to distinguish between global issues and how different nations face them.

#### **LPT3022 COMPARATIVE POLITICS**

Identify the main political analysis approaches and mecha-

nisms decision-making by interpreting the concept of governance to develop public policy proposals from a political behavior and behavioral analysis perspective.

#### **LRI3042 UNITED STATES, SOCIETY AND STATE**

Examine the political system and society of the United States, analyzing its history and the political, economic and social actors to interpret how its complex democratic system works and its relevance to Mexican foreign policy.

#### **LPT3032 POLITICAL INSTITUTIONS AND DEMOCRACY**

Compare the theoretical characteristics of the new institutionalism and in particular in the theory of democracy to apply and evaluate the concepts of development and political decadence through the analysis of historical and contemporary events.

#### **LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

#### **LPT3012 PROFESSIONAL PRACTICES 1**

Identify issues related to political science during your professional practices, to recommend comprehensive and appropriate solutions that respond to relevant problems in social organizations, public institutions or private sector institutions, applying a results-based management approach.

#### **LRI3052 CONTEMPORARY LATIN AMERICA**

Analyze recent history and politics of Latin American countries, as well as their contemporary problems, through a conceptual review of the most important ideas and cases of the dominant countries, to identify this region in the current global environment and to understand some of the academic trends.

#### **LPT3052 FEDERALISM AND LOCAL GOVERNMENTS**

Analyze the main institutional attributes of federalism as a form of government by identifying relevant types and classifications to compare the application of its characteristics in the design and operation of local governments in Mexico.

#### **LPT3082 GOVERNANCE AND PUBLIC POLICY**

Interpret the impact of governance when creating public policies, to develop proposals that improve public decision-making processes and implementation of public poli-

cies, by analyzing the importance of criteria such as citizen participation, multilevel play, deliberation, transparency, accountability, evaluation of results and vertical play on the international agenda.

#### **LPT3042 LEGISLATIVE POWER WORKSHOP**

Develop legislative change proposals by analyzing the legislative process, the institutional bases of legislative activity, its procedures, main actors, as well as the foundations of the legislative technique to create law projects and opinions.

#### **LPT3062 SELECT TOPICS 1**

Analyze current topics on the problems and policies of Mexico's national and international public agenda by identifying contemporary conceptual and theoretical political science frameworks to evaluate alternative solutions.

#### **LPT3072 DEVELOPMENT THEORY AND PRACTICE**

Identify international development foundations by analyzing theories, concepts and methodologies to understand the main debates about what it is and what the purpose of social progress is.

#### **LRI4022 ENVIRONMENTAL AND ENERGY GOVERNANCE**

Interpret environmental challenges and the global energy transition within the framework of the Anthropocene, analyzing different approaches to global environmental governance to design solutions to current socio-environmental problems.

#### **LPT4012 POLITICAL MARKETING**

Develop an electoral campaign, within the framework of the American political system, to apply theoretical knowledge on political marketing evaluating five variables: political discourse, political advertising, campaign infrastructure, institutional support, and expert/specialist support.

#### **LPT4052 POLITICS AND NEW TECHNOLOGIES**

Develop virtual civil society platforms to give citizens better access to technical information through a critical analysis of theories.

#### **LPT4022 PROFESSIONAL PRACTICES 2**

Apply the knowledge acquired during your studies to real scenarios by analyzing theoretical concepts and methods based on results to develop solutions to political science problems.

#### **LPT4042 GOVERNMENT WORKSHOP**

Identify government agenda problems, by analyzing their decision-making process under the criteria of effectiveness, efficiency, impact assessment, accountability and transparency, and determine intervention policies.

#### **LPT4032 SELECT TOPICS 2**

Analyze cutting-edge topics on the different political science trends and new actors identifying and using current analytical tools to apply them in solving contemporary social problems.

#### **LPT4062 DESIGN AND ANALYSIS OF CAMPAIGNS**

Develop a presidential election campaign strategy, within the framework of the Mexican political system, to apply theoretical knowledge and historical evidence of previous elections, analyzing the central variables of campaigns: electorate, candidate, political system and culture, media and policy proposals.

#### **LRI4122 GLOBAL POLITICAL ECONOMY**

Interpret global political economy, by analyzing economic globalization theories and concepts, to relate international processes to the dynamics of global economic interaction.

#### **LRI4082 STUDIES ON SECURITY**

Understand the different branches of security, through critical discussion from a multidimensional perspective, to analyze security policies at local, national and international level.

#### **LPT4072 RESEARCH AND ANALYSIS WORKSHOP**

Develop a research project on social phenomena and/or public policies using quantitative and qualitative techniques.

#### **LPT4092 PUBLIC POLICY WORKSHOP**

Develop a concrete, convincing and feasible public policy to evaluate its feasibility to solve current Mexican public problems, applying practical design and research tools.

#### **LPT4082 SELECT TOPICS 3**

Analyze contemporary global agenda topics, evaluating existing international mechanisms and instruments to develop solutions to economic, political, societal, security and environmental problems.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## GENERAL STUDIES ELECTIVE IN ARTS \*

### ART0022 ART AND CULTURE IN THE AMERICAS

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

### ART0012 ART, HISTORY AND CULTURE

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## GENERAL STUDIES ELECTIVE IN HUMANITIES \*

### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

## GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

*\*UDLAP's General Education (GenEd) courses.*

# COMMUNICATIONS AND MEDIA PRODUCTION

## **LPM1012 FUNDAMENTALS OF COMMUNICATION**

Identify the basic concepts of communication, social, cultural and technological development of mass media, by distinguishing the dimensions of the communicative phenomenon to assume responsibility as a creator of meanings and critical user of the media.

## **LIV1022 FUNDAMENTALS OF DIGITAL IMAGES**

Play simple vector images or bitmaps using specialized digital imaging software that can be used in both screen and print design projects.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LRP1012 COMMUNICATION THEORIES**

Understand communication theories, analyzing their main effects through evolution to assess the importance of knowledge; apply theoretical communication models and mass culture to create effective messages.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **LIV1052 EDITING DIGITAL IMAGES**

Design digital images to relate a visual message to a specific audience using specialized software to produce images and thus effectively define the appropriate technical parameters of their medium.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LIV1072 PHOTOGRAPHY**

Identify the components of a photo by using techniques and equipment to create images.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LPM1022 LANGUAGE OF CINEMA I**

Identify the major milestones in the first sixty years of film history through a written analysis of a film in accordance with the evolution and use of narrative and cinematic language techniques until the late 1950s to understand the most relevant authors and their contributions to the cinematographic language.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LPM2022 SCRIPT WRITING**

Analyze film scripts by identifying its elements to write a short film and segment a feature film.

**LIV2022 INFOGRAPHICS AND DATA VISUALIZATION**

Design visualizations and infographics by producing maps, diagrams, or icons to explain a fact or phenomenon that is published in a digital and/or printed design product.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LPM2012 LANGUAGE OF CINEMA II**

Examine the major milestones of contemporary cinema from the 1960s to date by analyzing films dealing with formal and contextual aspects to identify historical, political, social and cultural factors that influence them.

**LRI2012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

**LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

**LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

**LPM2032 AUDIOVISUAL PRE-PRODUCTION**

Develop an audiovisual preproduction portfolio using elements of production design, applied to short films, music videos, corporate videos or feature films to use the most relevant knowledge of each stage of the audiovisual pre-production process.

**LPM2052 PRODUCTION OF MULTIMEDIA CONTENT**

Identify the characteristics and virtues of different digital resources and tools by designing an effective communication strategy applicable to the field of new media to develop an internet portal with interactive content.

**LPM2042 JOURNALISTIC WRITING AND STYLE**

Describe the theoretical basis and the essential tools to develop the capacity to build a journalistic story using the written language specific of printed and digital media.

**LRP3012 ANALYSIS OF NEW MEDIA**

Analyze the main epistemological paradigms of new media, dominating the key concepts to carry out of analysis and implementation projects.

**LPM3042 ADVANCED SCRIPT WRITING**

Analyze alternative films to the classic model of Hollywood narrative, applying theories on dramatic construction and audiovisual syntax to write an adaptation of a short film, rewrite a short film and/or segmentation of a feature film.

**LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

**LPM3022 PROFESSIONAL PRACTICES 1**

Apply the knowledge and skills acquired through the academic training in projects and daily activities of an organization that contribute in the integral formation to create a verifiable work experience.

**LPM3032 RADIO PRODUCTION**

Produce auditory messages with communicative richness, through the intentional use of the expressive resources of radio and the correct operation of audio recording and reproduction digital equipment to explain strategic proposals within the radio world.

**LPM3012 AUDIOVISUAL PRODUCTION TECHNIQUES**

Identify the elements of audiovisual messages by creating creative, technical and aesthetic works using different tools and technical resources to express and broadcast audiovisual messages in an effective way and that comply with the minimum technical and aesthetic standards when shown or broadcast.

**LPM3062 DIGITAL EDITING**

Understand the background and current state of the editing process, through its different stages and thus discern between the different tools and resources to distinguish the most appropriate in different projects.

**LRP3062 DIGITAL MEDIA STUDIES**

Identify the historical, cultural and social context of digital media, identifying its multiple meanings, impacts and potential use in diverse audiences to use new digital technologies and social networking tools when planning advertising and public relations strategies.

**LPM3092 TYPES OF JOURNALISM**

Explain the different modalities of media expression through the generation of journalistic texts to identify the different expressive formulas that the journalist can adopt in the transmission of facts and opinions.

**LPM3052 AUDIOVISUAL PRODUCTION**

Determine the functions and responsibilities of the producer when developing audiovisual material, identifying the advanced techniques of audiovisual production to create audiovisual products that meet aesthetic, creative and technical standards at a professional level.

**LPM3072 ADVANCED RADIO PRODUCTION**

Apply radioelements in various techniques and scope as communication tools to create innovative audio producers, with successful strategic radio proposals.

**LPM3082 SELECT TOPICS 1**

Analyze specific theoretical assumptions on mass communication issues to identify how the media functions and its structures by analyzing communication theories.

**LPM4042 DOCUMENTARY**

Analyze the advantages and limitations of different types of documentary forms by implementing audiovisual language techniques to produce original documentaries

**LPM4022 INVESTIGATIVE JOURNALISM**

Identify the sources of journalistic research through of new technologies techniques and strategies to apply them to journalistic research.

**LPM4062 PROFESSIONAL PRACTICES 2**

Apply communication and media production knowledge, by practicing in audiovisual projects and media companies, in order to develop the skills, attitudes and experiences necessary to work in this area.

**LPM4012 TELEVISION PRODUCTION**

Produce a television program by properly applying knowledge and techniques in the preproduction, production and post-production stages, to express messages directed to a target audience with specific contents within a programmatic bar.

**LPM4032 DISTRIBUTION AND EXHIBIT WORKSHOP**

Apply the film distribution and exhibition process to a practical case through the knowledge and skills necessary to develop the logistics of a cinema marketing company in Mexico.

**LPM4052 SELECT TOPICS 2**

Identify audiovisual media issues applying theories and communication models to analyze and carry out comprehensive production projects

**LPM4092 DIGITAL CINEMA**

Apply the principles and techniques of cinema to a high-resolution digital video production to develop an audiovisual project (short digital video) in the cinematographic style, in a creative and original way.

**LPM4072 SOUND DESIGN AND EDITING**

Synchronize images, video or multimedia by applying sound language in productions to identify aesthetic and artistic guidelines.

**LPM4082 DESIGN AND EVALUATION OF COMMUNICATION PROJECTS**

Demonstrate a critical understanding of the concept of communication and its key terms to critically determine the quality and influence of communication by completing comprehensive projects in different areas

**LPM4102 DIGITAL JOURNALISM**

Explain the new digital environment through the relationship between the information society and the media, to determine the importance of digital communication in our world.

**LPM4112 SELECT TOPICS 3**

Analyze audiovisual and digital communication issues, making use of specific skills to develop content relevant to the contemporary sociocultural environment.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## GENERAL STUDIES ELECTIVE IN MATH \*

### MAT0012 MATH FOR THINKING

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### MAT0022 MATH AND CULTURE

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

## GENERAL STUDIES ELECTIVE IN HUMANITIES \*

### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# COMMUNICATION AND PUBLIC RELATIONS

## **LPM1012 FUNDAMENTALS OF COMMUNICATION**

Identify the basic concepts of communication, social, cultural and technological development of mass media, by distinguishing the dimensions of the communicative phenomenon to assume responsibility as a creator of meanings and critical user of the media.

## **LIV1022 FUNDAMENTALS OF DIGITAL IMAGES**

Play simple vector images or bitmaps using specialized digital imaging software that can be used in both screen and print design projects.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LRP1012 COMMUNICATION THEORIES**

Understand communication theories, analyzing their main effects through evolution to assess the importance of knowledge; apply theoretical communication models and mass culture to create effective messages.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **LAD1012 EFFECTIVE COMMUNICATION**

Identify the importance of an organization's effective communication, analyzing theoretical and methodological application proposals to define possibilities that create action propositions.

## **LIV1052 EDITING DIGITAL IMAGES**

Design digital images to relate a visual message to a specific audience using specialized software to produce images and thus effectively define the appropriate technical parameters of their medium.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LIV1072 PHOTOGRAPHY**

Identify the components of a photo by using techniques and equipment to create images.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LRP2022 WRITING FOR THE MEDIA**

Develop different techniques of organizing arguments, with special attention to mass communication phenomena, through the application of rhetorical and literary figures to identify the different characteristics.

**LIV2022 INFOGRAPHICS AND DATA VISUALIZATION**

Design visualizations and infographics by producing maps, diagrams, or icons to explain a fact or phenomenon that is published in a digital and/or printed design product.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LRI2012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

**LRP2012 PRINCIPLES OF PUBLIC RELATIONS**

Identify the role of public relations within communication, as well as its evolution and current function by designing persuasive ethical messages to help organizations implement effective strategic communications.

**LIV2032 VISUAL SEMIOTICS AND RHETORIC**

Identify the main contributions of semiotics and rhetoric to study visual messages, by analyzing relevant theories and examples in order to have a basis for visual information design decisions.

**LMK2022 CONSUMER BEHAVIOR**

Explain consumer behavior in marketing using the analysis of theories, cases and research tools to achieve effective market segmentation. Apply consumer behavior knowledge to marketing in order to meet the market's needs, using market research tools to detect the influence factors on consumers' behavior in the search, purchase, use, and disposal of products or services.

**LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interven-

tions in everyday contexts to understand prejudices and stereotypes.

**LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

**LPM2052 PRODUCTION OF MULTIMEDIA CONTENT**

Identify the characteristics and virtues of different digital resources and tools by designing an effective communication strategy applicable to the field of new media to develop an internet portal with interactive content.

**LRP3012 ANALYSIS OF NEW MEDIA**

Analyze the main epistemological paradigms of new media, dominating the key concepts to carry out of analysis and implementation projects.

**LRP3032 DISCOURSE ANALYSIS FOR COMMUNICATION**

Analyze, in a competent and adequate way, the discursive analyses of various media, reviewing the narrative, discursive and persuasive communications to present a critical judgment on their diegetic potential, both analog, digital and emerging.

**LMK3032 INTEGRAL COMMUNICATION IN MARKETING**

Design integral communication campaigns using different marketing tools to convince the customer of the company's products or services, thus successfully commercializing them.

**LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

**LRP3022 PROFESSIONAL PRACTICES I**

Apply communication and public relations knowledge and skills acquired in your studies in projects and daily activities of an organization to acquire work experience.

**LRP3042 VERBAL AND NON-VERBAL COMMUNICATION**

Identify the elements of verbal and non-verbal communication, analyzing theories to explain communication intentions in different contexts and thus produce efficient messages for different audiences.

**LRP3072 COMMUNICATION AND ORGANIZATIONAL DEVELOPMENT**

Identify the concepts and operations of organizational communication, its historical context and internal and external applications in different organizations, designing internal communication strategies that favor organizational culture.

**LRP3062 DIGITAL MEDIA STUDIES**

Identify the historical, cultural and social context of digital media, identifying its multiple meanings, impacts and potential use in diverse audiences to use new digital technologies and social networking tools when planning advertising and public relations strategies.

**LRP3052 PERSUASION AND PUBLIC OPINION**

Identify the theoretical approaches and historical evolution of public opinion in different contexts, analyzing it in its immediate context to link its effects with social, political and economic reality.

**LRP3082 SELECT TOPICS 1**

Analyze current communication topics on specific theoretical assumptions to identify the functioning and structure of public relations identifying organizational problems.

**LRP3092 CRITICISM THEORY AND CULTURAL STUDIES**

Critically analyze the patterns, structures and social processes that influence the behavior of individuals as information consumers using content dissemination systems to analyze contemporary media.

**LPT4012 POLITICAL MARKETING**

Develop an electoral campaign, within the framework of the American political system, to apply theoretical knowledge on political marketing evaluating five variables: political discourse, political advertising, campaign infrastructure, institutional support, and expert/specialist support.

**LMK4012 SOCIAL MARKETING**

Design social marketing strategies to plan programs to run non-profit organizations, and public or political institutions.

**LRP4022 PUBLIC RELATIONS PLANNING**

Design a professional and ethical strategic public relations plan, applying communication theories, models, tools and techniques to identify customer expectations.

**LPT4052 POLITICS AND NEW TECHNOLOGIES**

Develop virtual civil society platforms to give citizens better access to technical information through a critical analysis of theories.

**LRP4012 PROFESSIONAL PRACTICES 2**

Apply communication and public relations knowledge in social, commercial and corporate projects to develop the skills, attitudes and experiences necessary for your profession.

**LRP4032 SELECT TOPICS 2**

Analyze corporate communication topics by analyzing communications and multidimensional organizations to develop comprehensive public relations projects.

**LRP4042 STRATEGIC CAMPAIGNS IN DIGITAL MEDIA**

Create persuasive social network communication strategies so organizations can achieve their public relations goals and build a brand image to include the audience based on their use of social networks.

**LRP4052 CRISIS COMMUNICATIONS**

Develop a crisis communication plan by applying communication theories and techniques to real cases evaluating communication materials to prepare organizations in critical situations that endanger their reputation and image.

**LRP4062 BRAND CONSTRUCTION AND CORPORATE REPUTATION**

Diagnose the value and advantage of creating strong brands that can adapt through image and performance audits to develop comprehensive communication strategies that increase their positioning and reputation.

**LPM4082 DESIGN AND EVALUATION OF COMMUNICATION PROJECTS**

Demonstrate a critical understanding of the concept of communication and its key terms to critically determine the quality and influence of communication by completing comprehensive projects in different areas

**LRP4072 SELECT TOPICS 3**

Analyze current issues in specific theoretical assumptions on communication, public relations and related areas, by studying public relations and how to identify the operation and structure of comprehensive public relations projects.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it,

both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### GENERAL STUDIES ELECTIVE IN MATH \*

#### MAT0012 MATH FOR THINKING

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### MAT0022 MATH AND CULTURE

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

#### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

### GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

#### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

#### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

### GENERAL STUDIES ELECTIVE IN HUMANITIES \*

#### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

#### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# LAW

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the magna carta, in order to understand the priority role that they possess when making legal orders.

## **LDE1032 HISTORY OF LAW**

Identify the stages of creation of legal ideas, distinguishing their main characteristics in order to describe the origins of law in general, and specifically the institutions.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LDE1022 THEORY OF LAW**

Identify the peculiarities of legal regulations as compared to other regulation systems, as well as their structural and value elements, by studying the most representative theories in order to distinguish the different dimension of the legal phenomena.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **LDE1042 ADMINISTRATIVE LAW**

Identify the regulations and functions of the Mexican state, understanding the laws that regulate the actions of the different institutions that constitute it, to analyze its administrative structure and acts.

## **LDE1072 CRIMINAL DOGMA AND CRIMES**

Understand the different principles, foundations, regu-

lations and hypotheses of criminal science by relating the different theories and doctrines applicable in the criminal justice system in Mexico, to describe the constitutional elements of crime and its perpetrations.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LDE1062 PEOPLE AND FAMILY**

Identify the person as the only holder of rights and regulations, both as a physical being as well as a legal one, and family as the organization protected by legislation; understand the attributes they have in the constitution and civil legislation, to solve their legal controversies.

## **LDE1052 LEGAL RESEARCH AND REASONING WORKSHOP**

Identify the methodological tools on which legal reasoning is based, in order to handle the sources from the identification of legislative, jurisdictional and doctrinal formulations in law to interpret and provide solutions to legal problems.

## **LDE2032 PROPERTY AND SUCCESSION**

Identify the legal nature and regulation of patrimony and its inheritance, understanding the regulations and Mexican doctrine that regulate them, to apply them in legal practice.

## **LDE2012 CORPORATE LAW**

Examine the different systems involved in commercial companies, analyzing Mexican regulations to identify the mechanisms and legal institutions that influence their operation.

## **LDE2042 CRIMINAL PROCEDURAL LAW**

Develop the criminal procedure structure by analyzing each of its stages, to identify said procedure, observing and making sure it meets the entitlements and human rights recognized by the Mexican constitution.

## **LDE2022 HUMAN RIGHTS**

Interpret the concept of human rights in theory, legislation and jurisprudence, through its categorization in order to examine the different defense methods in the national and international legal system.

**ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LDE2072 COPYRIGHT LAW**

Apply the national and international legal copyrights framework, from its theoretical and practical knowledge, to classify a company's copyrights in its different processes, products or services.

**LDE2052 TAX LAW**

Analyze the different tax provisions that regulate the legal tax relationship between active and passive taxpayers, comparing the elements that constitute direct and indirect taxes to establish their legality.

**LDE2062 LABOR LAW**

Compare the rules that regulate work in Mexico and the world, analyzing how companies and unions work to explain how to establish better legal bases to create and improve employment in the country.

**LDE2082 BANK AND FINANCE OPERATIONS**

Interpret Mexico's central bank's legal provisions, case law and dispositions that regulate the active and passive subjects that intervene in credit institutions and bank auxiliaries, through the analysis of legal elements to make decisions in banking businesses.

**LDE2102 ORAL TRIALS SEMINAR**

Develop written and oral skills, by participating in oral trials, applying case theory formulation techniques, interrogation and arguments to identify the stages and audiences of the adversarial system.

**LDE2092 GENERAL THEORY OF OBLIGATIONS**

Examine the concepts of obligation, elements, sources, transmission and extinction, through legal and jurisprudence studies to evaluate legal acts and facts.

**LDE3012 FOREIGN TRADE AND INTERNATIONAL TREATIES**

Analyze the regulation of operations in foreign trade, investigating the applicable national and international regulations, to identify problems in international trade.

**LDE3042 CIVIL AND COMMERCIAL CONTRACTS**

Compare different types of civil and commercial contracts, using doctrine, legislative and jurisprudence approaches to identify validity and existence elements.

**LDE3022 PUBLIC INTERNATIONAL LAW**

Identify the constitutional elements of treaties, international customs and general principles and doctrines of international law, analyzing contemporary theories of conventional and customary regulations, binding and non-binding determinations of different international institutions with which Mexico collaborates, to apply them to practical cases.

**LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

**LDE3052 PROFESSIONAL PRACTICES I**

Identify the knowledge of law by practicing in different public or private organizations in order to develop the necessary skills, attitudes and experience to exercise your profession.

**LDE3032 LEGAL WRITING WORKSHOP**

Write legal documents by analyzing facts and legal arguments to identify the elements that express consistency and coherence with cause, reason or motives.

**LDE3082 WRIT OF AMPARO**

Identify the principles, under which the right of amparo is governed, as well as its origins, through the analysis of national legislation and jurisprudential criteria, to create writs.

**LDE3102 PRIVATE INTERNATIONAL LAW**

Identify the main legal systems in private international law, analyzing the national and international legal system to establish solutions to problems related to nationality, foreign, legal processes and legal status of foreign individuals and corporations.

**LDE3092 CIVIL AND COMMERCIAL PROCEDURAL LAW**

Distinguish the structure of civil and commercial procedures, analyzing the stages that comprise it to identify its procedures and take the necessary actions contemplated in those procedures.

**LDE3062 FISCAL AND ADMINISTRATIVE PROCEDURAL LAW**

Analyze defense strategies through doctrine, legal and juris-

prudence dispositions in order to develop defense skills in administrative and tax cases.

#### **LDE3072 ALTERNATIVE MECHANISMS TO SOLVE CONTROVERSIES AND ALTERNATE SOLUTIONS TO CRIMINAL PROCEEDINGS**

Analyze alternative dispute resolution procedures or early conclusion of the criminal process by identifying the rules, procedures, resources, terms and legal instances corresponding to each contentious, litigious, jurisdictional or quasi-jurisdictional case, to design an effective and efficient legal strategy in mediation, conciliation, arbitration, reparatory agreement, simplified procedure and conditional suspension cases.

#### **LPT3042 LEGISLATIVE POWER WORKSHOP**

Develop legislative change proposals by analyzing the legislative process, the institutional bases of legislative activity, its procedures, main actors, as well as the foundations of the legislative technique to create law projects and opinions.

#### **LDE4032 LEGAL ARGUMENTATION**

Interpret normative assumptions and relevant facts, by constructing justified arguments to examine problems in normative and factual propositions.

#### **LDE4012 INTERNATIONAL CONTRACTS AND ARBITRAGE**

Design international contracts and arbitration agreements through the use of national and international regulations to identify the legal structure of international commercial transactions.

#### **LDE4042 CONSTITUTIONAL PROCEDURAL LAW**

Identify rules and procedures to defend the Constitution, analyzing legal institutions that combine elements of the three branches of government, federal entities, civil society, and the international arena, to determine the factors that guarantee democracy and the rule of law.

#### **LRI4022 ENVIRONMENTAL AND ENERGY GOVERNANCE**

Interpret environmental challenges and the global energy transition within the framework of the Anthropocene, analyzing different approaches to global environmental governance to design solutions to current socio-environmental problems.

#### **LDE4022 PROFESSIONAL PRACTICES 2**

Use legal experience by practicing in different public or private organizations to apply the skills, attitudes and experiences necessary in practice.

#### **LDE4052 ORAL LITIGATION TECHNIQUES**

Connect the knowledge acquired in different legal disciplines, using prepared or improvised techniques and discourses containing legal bases to develop oral litigation or alternative conflict resolution.

#### **LDE4062 PHILOSOPHY OF LAW**

Understand different approaches, in terms of law analysis, from the reconstruction of the most important features of the dominant concepts of legal thinking, such as legal positivism, natural law and legal realism, to reflect on the theoretical and ideological implications that produce sentences in contemporary legal systems.

#### **LDE4072 CASE SIMULATION SEMINAR**

Evaluate legal problems in the different public and private disciplines at a national and international level, through procedural simulation and substantive implementation of the applicable law, to develop forensic skills and competencies in different legal areas.

#### **LDE4082 SELECT TOPICS 1**

Analyze public law topics, at a national or international level, by analyzing facts, conflicts, doctrines, practical cases, normative principles, laws or treaties to propose theoretical, practical, documentary or oral solutions within the applicable legal framework.

#### **LDE4092 SELECT TOPICS 2**

Examine new legal paradigms in the administration of justice, through the evaluation of institutions and legal figures, to apply the corresponding legal mechanisms.

#### **LDE4102 SELECT TOPICS 3**

Analyze private law topics, analyzing its legal structure to identify the regulatory characteristics, scope, rights and obligations.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and to the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# PEDAGOGY

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the Magna Carta, in order to understand the priority role that they possess when making legal orders.

## **LPD1012 HISTORY OF EDUCATION IN MEXICO**

Analyze the historical processes of the educational system, the profession, the educational institutions and organizations in Mexico, based on documental and audiovisual aids to relate these processes to current conditions and events and to identify their possible consequences.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LPD1022 EDUCATIONAL THEORY**

Analyze the different philosophical educational trends by comparing their principles and applications to provide a philosophical standpoint on which to base an educational proposal.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to com-

municate with native speakers in everyday and academic situations.

## **LPD1032 TEACHING PLANNING AND STRATEGIES**

Identify different elements of didactic planning by analyzing various proposals to plan and substantiate teaching and learning situations from different approaches.

## **LPA1022 CHILD AND ADOLESCENT PSYCHOLOGY**

Identify the characteristics of the different development - infancy, childhood and adolescence - through physical, cognitive, emotional and social variables to create a complete vision of child and adolescent development

## **LPD1042 LEARNING AND TEACHING THEORIES**

Distinguish between the main learning and teaching theories by identifying their fundamentals to analyze and design teaching situations in the classroom.

## **LPD2022 COMMUNICATION AND EDUCATIONAL INTERACTION**

Apply communication strategies in the classroom considering different teaching methods and learning styles, classroom environment, intrapersonal communication, interpersonal and small group communication, verbal and nonverbal communication, and especially ethical issues such as respect, discrimination, racism, and violence, to solve communication problems.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LR12012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

**LPA2012 COGNITIVE PROCESSES**

Analyze the main theories, methods and paradigms of cognitive processes, identifying the possible applications to link the approaches of cognitive science to the different fields that study behavior.

**LPD2012 EDUCATIONAL TECHNOLOGY AND INSTRUCTIONAL DESIGN**

Design teaching-learning experiences by selecting and applying different instructional design models proposed by educational technology to solve problems related to human learning.

**LPD2042 CURRICULAR DESIGN**

Identify the fundamentals of the curriculum of an educational institution of your choice, analyzing its philosophy, learning theory(s), society, culture and curricular theory that serve as a basis to determine its relevance.

**LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

**LPD2052 FORMAL EDUCATION PROJECT**

Analyze the educational processes in formal education classrooms by designing and applying diagnostic techniques and tools (diagnosis of needs and abilities, learning difficulties) to propose a concrete educational intervention that responds to identified needs.

**LPA2042 ADULT AND GERIATRIC PSYCHOLOGY**

Identify the characteristics of the different stages adulthood and old age by comparing biological, psychological and sociocultural factors to have a complete view of adult and geriatric development

**LPA2032 CHILD AND ADOLESCENT PSYCHOPATHOLOGY**

Evaluate the psycho-emotional health of child and adolescence development stages, analyzing the clinical description, etiology and differential diagnosis of early age disorders to establish a clinical psychological diagnosis, identifying possible treatments in an ethical, critical, respectful and creative way.

**LPD3062 EDUCATIONAL EVALUATION**

Develop complete assessment plans for different levels such as the classroom, institution and system, selecting the type of assessment relevant to a given educational situation, de-

signing and applying the appropriate tools, and creating a final report of results to identify areas of opportunities to improve learning, performance and overall educational quality.

**LPD3052 ICTS IN ORGANIZATIONS**

Design a project in an organization that incorporates Information and Communication Technologies (ICT) as a strategic part of training individuals and groups, considering the contexts of the organization, society and current literature on this subject.

**LPD3022 ORGANIZATION AND MANAGEMENT OF EDUCATIONAL INSTITUTIONS**

Apply theory and organizational behavior principles to the integration and management of educational institutions by analyzing contextual variables to strengthen existing and non-financial administrative processes and operation.

**LPD3032 EDUCATIONAL ORIENTATION AND COUNSELING**

Identify models, principles and approaches of educational, school and professional orientation by analyzing cases to design appropriate counseling strategies to different groups, contexts and educational objectives.

**LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

**LPD3012 PROFESSIONAL PRACTICES I**

Design a practice project in a formal or non-formal organization based on the analysis of the identity, field, professional outreach and educational needs to apply and relate the skills you have learned throughout your studies.

**LPD3042 SOCIO EDUCATIONAL THEORIES**

Apply socio-educational theories that explain human development in the theoretical and methodological construction of a real pedagogical intervention, based on the analysis of the context as well as interdisciplinary discussions to identify global and local problems that impact the education, society and sustainable development.

**LRP3072 COMMUNICATION AND ORGANIZATIONAL DEVELOPMENT**

Identify the concepts and operations of organizational communication, its historical context and internal and external

applications in different organizations, designing internal communication strategies that favor organizational culture.

**LPD3092 DETECTING EDUCATIONAL NEEDS IN ORGANIZATIONS**

Identify educational, training and human resources development needs in an organization, applying the appropriate methodologies to ensure the accuracy and objectivity of the results obtained.

**LPD3112 DISTANCE LEARNING**

Select appropriate methods and strategies to develop online and distance learning experiences, based on educational theory, teaching and learning principles, organizational structure and national educational policy.

**LPD3102 DIFFERENTIAL EDUCATION**

Identify the different educational intervention models for individuals, groups and contexts based on social inequality, socio-cultural contexts, minorities, gender, sexual diversity, poverty, ethnocentrism, social exclusion, marginalization and migration to consider the diversity of students and complexities in the learning process.

**LPD3082 EDUCATION IN ORGANIZATIONS**

Identify, in any type of organization, the theory and organizational behavior that characterize it to relate them to the educational teaching and learning processes that could occur in each of the types of organization analyzed, using the theoretical categories reviewed in the course.

**LPD3072 EDUCATIONAL LEGISLATION AND POLICIES**

Analyze the history, evolution and current situation of the legal framework that regulates the educational activity in Mexico discussing legislation and educational policies to identify areas of opportunity and proposals to improve education.

**LPD4042 TRAINING AND DEVELOPMENT IN ORGANIZATIONS**

Design relevant and feasible training plans and programs to address development and/or training needs in specific contexts of specific populations, applying adult learning theories and affective processes; you will design Instructional models, appropriate methods and techniques.

**LPD4022 COMPARATIVE EDUCATION**

Identify the different approaches that are used in comparative education studies by analyzing recent studies on the global agenda related to this field to compare the current conditions of society and education in the world.

**LPD4052 ADULT TRAINING**

Articulate plans, programs and training activities for adults considering their context and sociocultural particularities by contrasting methodologies and strategies that have the greatest impact on the education of this age group.

**LPD4012 PROFESSIONAL PRACTICES 2**

Perform practices in an organization according to the context and to the recipients, analyzing the experience from a theoretical, pertinence of the planning, profile and the professional identity perspective to put into practice the skills you acquired during your studies.

**LPD4032 NON-FORMAL EDUCATIONAL PROJECT**

Design variable diagnosis and detection tools based on rigorous systematization to justify a specific educational action (diagnosis of needs, abilities, factors of exclusion and social discrimination, learning difficulties, etc.) in non-formal education.

**LPD4072 CONTEMPORARY EDUCATIONAL DEBATES AND TRENDS**

Analyze the nature and purposes of education in the 21st century, and the political, social and relevant contexts in which education is defined or implemented by discussing contemporary educational issues to understand the different situations that affect the country and involve global society.

**LPD4062 APPLIED EDUCATIONAL PROJECT**

Design an educational innovation project in an organization by applying knowledge acquired during your studies to propose solutions and improvements that favor learning.

**LPD4082 SELECT TOPICS 1**

Examine the different agents, areas and spaces in which the subjects are formed in formal education in Mexico and in the world to identify the needs of pedagogical intervention by analyzing specific nature, conditions, experiences and problems.

**LPD4092 SELECT TOPICS 2**

Relate the different agents, areas and spaces in which subjects are formed in non-formal education in Mexico and in the world to identify the needs of pedagogical intervention by analyzing the nature, conditions, experiences and specific problems.

**LPD4102 SELECT TOPICS 3**

Examine the different agents, areas and spaces in which the subjects are formed in informal education in Mexico and in

the world to identify the needs of pedagogical intervention by analyzing the nature, conditions, experiences and specific problems.

### GENERAL STUDIES ELECTIVE IN ARTS \*

#### ART0022 ART AND CULTURE IN THE AMERICAS

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### ART0012 ART, HISTORY AND CULTURE

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### GENERAL STUDIES ELECTIVE IN MATH \*

#### MAT0012 MATH FOR THINKING

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### MAT0022 MATH AND CULTURE

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

#### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

### GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

#### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health

through research that provides data on eating habits, to choose an informed everyday diet.

#### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

### GENERAL STUDIES ELECTIVE IN HUMANITIES \*

#### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

#### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# CLINICAL PSYCHOLOGY

## **LMR1032 ANATOMY AND PHYSIOLOGY**

Evaluate the fundamentals of morphology and normal functioning of the organism, analyzing the structure and normal function of the different systems to obtain a comprehensive view on the physical structure of the human being.

## **LEA1022 CULTURE AND SOCIETY**

Identify the fundamental concepts of anthropology, comparing the social life of human communities, to define cultural diversity.

## **LPA1012 FUNDAMENTALS OF PSYCHOLOGY**

Understand psychology by analyzing its implications, and to define its scope.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LPA1032 PERSONALITY AND SOCIAL BEHAVIOR**

Identify the different personality perspectives by comparing the basic theories and hypotheses of each of the perspectives as well as the authors that developed them to understand the main contributions and their application in diverse psychology.

## **LPA1022 CHILD AND ADOLESCENT PSYCHOLOGY**

Identify the characteristics of the different development - infancy, childhood and adolescence - through physical, cognitive, emotional and social variables to create a complete vision of child and adolescent development.

## **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LRI2012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

## **LPA2012 COGNITIVE PROCESSES**

Analyze the main theories, methods and paradigms of cognitive processes, identifying the possible applications to link the approaches of cognitive science to the different fields that study behavior.

## **LPA2022 PSYCHOBIOLOGY**

Identify the structures that make up the nervous system analyzing neuronal function and changes of the nervous system in order to define anatomical injuries, chemical and/or physiological alterations that can generate changes in behavior ranging from information processing to basic functions.

**LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

**LPA2052 HUMAN EMOTIONS**

Explain the role of emotions in human behavior, both individual and interpersonal, distinguishing between healthy emotional regulation mechanisms and pathological ones, to interpret human emotional development.

**LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

**LPA2042 ADULT AND GERIATRIC PSYCHOLOGY**

Identify the characteristics of the different stages adulthood and old age by comparing biological, psychological and sociocultural factors to have a complete view of adult and geriatric development.

**LPA2032 CHILD AND ADOLESCENT PSYCHOPATHOLOGY**

Evaluate the psycho-emotional health of child and adolescence development stages, analyzing the clinical description, etiology and differential diagnosis of early age disorders to establish a clinical psychological diagnosis, identifying possible treatments in an ethical, critical, respectful and creative way.

**LPA3032 SYSTEMATIC BEHAVIOR ANALYSIS**

Apply descriptive and inferential statistics using a statistical program in the social sciences (SPSS), to produce parametric and non-parametric analyses of quantitative data from various psychology studies.

**LPA3052 CRISIS INTERVENTION**

Apply management theoretical models in critical situations by identifying the factors associated with physical, cognitive, affective and behavioral responses of people of different ages, when facing a crisis, disaster or other traumatic event to understand the intervention process and carry it out in responsible and ethical way.

**LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining

the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

**LPA3042 PROFESSIONAL PRACTICES I**

Design a scientific project, applying the research methodology principles and techniques to analyze proposals that contribute to psychology.

**LPA3012 PSYCHOPHYSIOLOGY**

Analyze how the neuroendocrine system works, defining neurophysiological mechanisms to explain the multiple and diverse manifestations of behavior.

**LPA3022 INTERVIEW THEORY AND TECHNIQUES**

Apply the different phases of a psychological interview, analyzing ethical aspects and communication skills to simulate a psychological interview of clinical cases.

**LPA3072 BEHAVIOR MODIFICATION LAB**

Apply regulation mechanisms of animal and human behavior by designing and conducting of lab experiments, to identify the intervention process in behavior control.

**LPA3062 PSYCHOPHARMACOLOGY**

Describe the effects of psychoactive drugs on the central nervous system by analyzing pharmacokinetic processes, pharmacodynamics and the modulation of synaptic transmission to evaluate their usefulness as contributors to psychotherapy when treating mental disorders in adolescents and adults.

**LPA3092 PSYCHOMETRY**

Apply the psychological construct assessment procedures and techniques, obtaining the psychometric properties of instruments to develop standardized, valid and reliable psychological tests.

**LPA3102 PSYCHOPATHOLOGY I**

Assess the psycho-emotional status of adult patients by analyzing clinical description, etiology and differential diagnosis using current mental disorder classification manuals to establish a clinical diagnosis of personality disorders, psychotic disorders and dissociative disorders in an ethical, critical, respectful and creative way.

**LPA3112 PSYCHOTHERAPY**

Compare different psychotherapeutic approaches, analyzing the evidence of their clinical efficacy to define the treatment option in a responsible and ethical way.

**LMR3022 PUBLIC HEALTH AND EPIDEMIOLOGY IN HEALTH SCIENCES**

Identify the importance of epidemiology by applying epidemiological time, place and person variables to study the health situation of a population. Evaluate health indicators of communities and populations, by identifying health problems to design programs that comply with a public health policy.

**LPA3082 SELECT TOPICS 1**

Analyze neuroscience topics through theoretical study of the most current research on neurological and psychological diseases to develop proposals for new evaluation and treatment methods of mental health.

**LPA4022 PSYCHOLOGICAL EVALUATION I**

Evaluate the results of psychological tests by analyzing the measurement instruments to evaluate the intellectual abilities and skills of the examined subjects.

**LPA4032 NEUROSCIENCE LAB**

Identify the functional organization of the central nervous system, using histological methods, psychophysiological and behavioral observation techniques, to relate physiological variables to behavioral variables.

**LPA4052 PROFESSIONAL PRACTICES 2**

Perform a clinical intervention, from the initial evaluation to the evaluation of the assessment, always considering the ethical principles that regulate the psychologist's activity to develop professional psychological skills.

**LMR4012 HEALTH PSYCHOLOGY**

Select the procedures and techniques that best fit different situations, assessing the health aspect in an interdisciplinary way, reviewing biological, social and psychological aspects, to determine the factors that affect the mental pathology of the patient. Analyze personality disorders and other diseases, by classifying each of them and understanding their main traits, in order to practice medicine.

**LPA4062 PSYCHOPATHOLOGY II**

Evaluate the psycho-emotional status of adult patients by analyzing clinical description, etiology and differential diagnosis based on the use of the most current mental illness classification manuals to establish a clinical diagnosis of depressive, bipolar, anxiety disorders, those related to trauma, and obsessive-compulsive disorder in an ethical, critical, respectful and creative manner.

**LPA4042 SELECT TOPICS 2**

Analyze creative psychological process topics, identifying the technical and conceptual tools to develop and stimulate their creative process.

**LPA4082 PSYCHOLOGICAL EVALUATION II**

Interpret the results of psychological tests by analyzing the basics of the measuring instruments to evaluate the personality of the subjects examined.

**LPA4112 GENDER AND SEXUALITY**

Analyze the psychosocial variables that influence gender by understanding contemporary gender and sexuality theories to identify the context in which these are created and manifest the different paradigms of gender theories.

**LPA4092 NEUROPSYCHOLOGY**

Evaluate the psychophysiology of mental processes by applying neuropsychological and neuropsychiatric tests to diagnose neurocognitive disorders, in an ethical, critical, respectful and creative way

**LPA4072 PSYCHOLOGY OF FOOD**

Assess disruptive eating behaviors analyzing cognitions and social aspects to identify the disorder and recommend a healthy lifestyle.

**LPA4122 CONTEMPORARY PSYCHOTHERAPIES**

Compare the main components of third generation psychological therapies by analyzing their operation mechanisms to propose intervention programs in a specific clinical case.

**LPA4102 SELECT TOPICS 3**

Analyze positive psychology topics by identifying the factors that promote psychological well being to develop interventions focused on improving people's quality of life.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# ORGANIZATIONAL PSYCHOLOGY

## **LEA1022 CULTURE AND SOCIETY**

Identify the fundamental concepts of anthropology, comparing the social life of human communities, to define cultural diversity.

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the magna carta, in order to understand the priority role that they possess when making legal orders.

## **LPA1012 FUNDAMENTALS OF PSYCHOLOGY**

Understand psychology by analyzing its implications, and to define its scope.

## **LEX0112 FOREIGN LANGUAGE I**

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to com-

municate with native speakers in everyday and academic situations.

## **LPA1032 PERSONALITY AND SOCIAL BEHAVIOR**

Identify the different personality perspectives by comparing the basic theories and hypotheses of each of the perspectives as well as the authors that developed them to understand the main contributions and their application in diverse psychology.

## **LPA1022 CHILD AND ADOLESCENT PSYCHOLOGY**

Identify the characteristics of the different development - infancy, childhood and adolescence - through physical, cognitive, emotional and social variables to create a complete vision of child and adolescent development.

## **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LR12012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

## **LPA2012 COGNITIVE PROCESSES**

Analyze the main theories, methods and paradigms of cognitive processes, identifying the possible applications to link the approaches of cognitive science to the different fields that study behavior.

## **LPO2012 SOCIAL PSYCHOLOGY**

Explain the psychosocial phenomena, and the role of the individual and society, from the analysis of the construction of

the social to the collective to apply practical methodologies that contribute to knowledge.

#### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

#### **LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

#### **LPA2052 HUMAN EMOTIONS**

Explain the role of emotions in human behavior, both individual and interpersonal, distinguishing between healthy emotional regulation mechanisms and pathological ones, to interpret human emotional development.

#### **LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

#### **LPA2042 ADULT AND GERIATRIC PSYCHOLOGY**

Identify the characteristics of the different stages adulthood and old age by comparing biological, psychological and sociocultural factors to have a complete view of adult and geriatric development.

#### **LPA3032 SYSTEMATIC BEHAVIOR ANALYSIS**

Apply descriptive and inferential statistics using a statistical program in the social sciences (SPSS), to produce parametric and non-parametric analyses of quantitative data from various psychology studies.

#### **LDE2062 LABOR LAW**

Compare the rules that regulate work in Mexico and the world, analyzing how companies and unions work to explain how to establish better legal bases to create and improve employment in the country.

#### **LPO3012 PSYCHOLOGICAL INTERVIEW IN ORGANIZATIONS**

Identify the different types, characteristics and objectives of interviews in organizational contexts, by analyzing the stag-

es, areas to be investigated, communication skills required and ethical aspects to perform an effective psychological interview.

#### **LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

#### **LPO3022 PROFESSIONAL PRACTICES I**

Apply theoretical knowledge and disciplinary skills acquired through supervised professional practices in a public, private or social organization to develop solutions to real organizational psychology problems.

#### **LPO3032 RECRUITMENT AND PERSONNEL SELECTION**

Distinguish the stages of human resource management by analyzing the recruitment and selection process to properly apply the hiring and induction of personnel in a specific position.

#### **LPO3062 ORGANIZATIONAL DIAGNOSIS**

Apply the main functions of organizational diagnosis, by analyzing conceptual elements and methodological tools to create proposals that ensure organizational quality and continuous improvement of working life.

#### **LPO3052 GROUP FACILITATOR**

Explain how small groups function, by analyzing group dynamics, to effectively develop group activities.

#### **LPO3092 GROUPS AND COLLECTIVE PROCESSES**

Analyze the different theories focused on the study of groups and collective processes by identifying the psychosocial variables related to group dynamics to explain the influence that the group has on the daily life of the individual and their social practices.

#### **LPO3042 TECHNOLOGICAL MEDIATIONS OF PSYCHOSOCIAL PROCESSES**

Analyze technological mediation theories by identifying the ways in which technological mediation creates effects on psychosocial processes to apply different forms of subjectivation, and the context in which they form and manifest.

#### **LPO3082 CONSUMER PSYCHOLOGY**

Understand the principles of marketing, by evaluating opportunities, identifying and predicting consumer behavior,

as well as the decision-making ability required, to identify the strategic decision-making process in the use and production of products.

**LPA3092 PSYCHOMETRY**

Apply the psychological construct assessment procedures and techniques, obtaining the psychometric properties of instruments to develop standardized, valid and reliable psychological tests.

**LPO3072 SELECT TOPICS 1**

Examine organizational psychologist's intervention issues, using analysis of socio-economic factors to evaluate their effects on the formation of workers' identity.

**LPO4012 PSYCHO SOCIAL INTERVENTION DIAGNOSIS AND TECHNIQUES**

Compare the different intervention techniques through the analysis of theoretical-practical methodologies.

**LPA4022 PSYCHOLOGICAL EVALUATION I**

Evaluate the results of psychological tests by analyzing the measurement instruments to evaluate the intellectual abilities and skills of the examined subjects.

**LPO4052 LEADERSHIP, NEGOTIATION AND CONFLICT**

Evaluate the characteristics of leaders by analyzing their negotiation skills and attitudes to identify how they are used in conflict resolution.

**LPO4042 PROFESSIONAL PRACTICES 2**

Apply an organizational psychology intervention, by identifying the steps proposed from the initial evaluation to the assessment of the results obtained, to analyze their impact on organizations based on the ethical principles that regulate psychology.

**LPO4022 ORGANIZATIONAL PSYCHOLOGY**

Identify the role and functions of the psychologist in labor organizations, through the development of critical and reflexive thinking based on the theoretical bases of human behavior in labor contexts to contribute to humanizing work and improving the quality of working life of people.

**LPO4032 SELECT TOPICS 2**

Analyze creative process methods and strategies topics by applying techniques and theories to identify elements that promote change and innovation in organizational environments.

**LPO4072 WORK ATTITUDES AND SATISFACTION**

Identify the characteristics that define work attitudes by an-

alyzing its components to develop change strategies and increase work satisfaction.

**LPA4082 PSYCHOLOGICAL EVALUATION II**

Interpret the results of psychological tests by analyzing the basics of the measuring instruments to evaluate the personality of the subjects examined.

**LPA4112 GENDER AND SEXUALITY**

Analyze the psychosocial variables that influence gender by understanding contemporary gender and sexuality theories to identify the context in which these are created and manifest the different paradigms of gender theories.

**LPO4062 COMMUNITY PSYCHOLOGY**

Analyze contemporary community psychology theories by identifying the ethical and technical foundations of intervention to understand their context.

**LPO4092 PERSONNEL PSYCHOLOGY AND DEVELOPMENT**

Analyze the integral development of people in organizations by identifying the factors that contribute to their wellbeing and examine those that promote quality of life at work.

**LPO4082 SELECT TOPICS 3**

Analyze organizational change and the role of the occupational psychologist by applying assessment techniques to develop proposals that allow a well-being environment.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and to the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# INTERNATIONAL RELATIONS

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the magna carta, in order to understand the priority role that they possess when making legal orders.

## **LPT1012 FUNDAMENTALS OF POLITICAL SCIENCE**

Identify the fundamental concepts of political science (State, government, power, authority, legitimacy, democracy, etc.) by analyzing the structures, processes and results that underpin political phenomena, to understand different perspectives and methodologies that explain the complexity of governments, in addition to the political reality of contemporary society.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **LRI1012 POLITICAL AND SOCIAL THEORY I**

Identify the central problems and themes of political and social theory in different historical contexts, analyzing the classical authors who cemented the foundations of politics as a science, as well as studies on power, society and the State, to compare government interpretation and sociopolitical phenomena paradigms.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LRI1022 FUNDAMENTALS OF INTERNATIONAL RELATIONS**

Identify the most important international relations concepts, analyzing the interaction of international actors to evaluate political processes and their interconnection with economic, social and cultural processes in different parts of the world.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LRI1042 CONTEMPORARY MEXICAN POLITICS**

Identify the evolution of the Mexican political system from the Mexican Revolution to date, by analyzing its political, social and economic processes and the actors involved, thus developing contextual tools and interpreting national sociopolitical problems.

## **LRI1032 POLITICAL AND SOCIAL THEORY II**

Understand modern political and social theories, as well as the axes of the discussion around crucial subjects of current sociopolitical analysis by examining the main thinkers in this field, to understand the wide range of perspectives.

## **LDE2022 HUMAN RIGHTS**

Interpret the concept of human rights in theory, legislation and jurisprudence, through its categorization in order to examine the different defense methods in the national and international legal system.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing spe-

cialized information and applying academic and scientific standards to disseminate knowledge.

#### **LRI2022 HISTORY OF INTERNATIONAL RELATIONS**

Examine the development of international relations from its origins to the present, by analyzing different international systems to consider past experiences as a participant in contemporary international relations.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LRI2012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

#### **LRI2032 THEORY OF INTERNATIONAL RELATIONS**

Analyze the evolution of the main approaches of international relations, comparing their characteristics to identify the bases of international affairs.

#### **LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

#### **LRI2042 GLOBAL GOVERNANCE**

Analyze the main variables that intervene in Governance and Globalization processes, identifying their structural characteristics to examine the regional and global impact.

#### **LPD2032 ADVANCED RESEARCH METHODS IN SOCIAL SCIENCES**

Apply a research protocol, data collection and analysis in social sciences, to meet the scientific requirements of the field, by developing a project with different methodological approaches.

#### **LRI2052 MEXICAN FOREIGN POLICY**

Define the historical stages and principles of Mexico's foreign policy from its independence to date, analyzing governmental decision-making to identify priorities and the position of Mexico in the international context.

#### **LPT2042 COMPARATIVE POLITICAL SYSTEMS**

Analyze concrete forms of government and politics, by clas-

sifying and categorizing the different political systems in the world, to distinguish between global issues and how different nations face them.

#### **LDE3022 PUBLIC INTERNATIONAL LAW**

Identify the constitutional elements of treaties, international customs and general principles and doctrines of international law, analyzing contemporary theories of conventional and customary regulations, binding and non-binding determinations of different international institutions with which Mexico collaborates, to apply them to practical cases.

#### **LRI3042 UNITED STATES, SOCIETY AND STATE**

Examine the political system and society of the United States, analyzing its history and the political, economic and social actors to interpret how its complex democratic system works and its relevance to Mexican foreign policy.

#### **LRI3032 GEOPOLITICS AND STRATEGIC ANALYSIS**

Examine the main classical and contemporary approaches to geopolitics, understanding the rise of emerging powers, international security, nuclear proliferation, migratory phenomena, threat of terrorism, environmental security and access to natural resources, applying them to strategic analysis of the global agenda and their consequences in different countries and regions.

#### **LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

#### **LRI3022 PROFESSIONAL PRACTICES 1**

Apply your acquired knowledge acquired by analyzing international relations issues during your professional practice to develop comprehensive and appropriate solutions to relevant problems in social organizations, public or private institutions.

#### **LRI3052 CONTEMPORARY LATIN AMERICA**

Analyze recent history and politics of Latin American countries, as well as their contemporary problems, through a conceptual review of the most important ideas and cases of the dominant countries, to identify this region in the current global environment and to understand some of the academic trends.

#### **LRI3082 CONSULAR LAW AND DIPLOMACY**

Examine domestic and international diplomatic and consular

legislation by analyzing the practical and theoretical aspects of the relationship between diplomatic and consular practice to develop a historical-comparative perspective of Mexico's diplomatic and consular practice.

#### **LRI3092 NORTH AMERICAN STUDIES**

Analyze the actors, processes, institutions and political, economic and social dynamics in North America, examining theories and concepts to identify the characteristics and problems of regional interaction, as well as their influence on Mexican foreign policy.

#### **LRI3062 ASIAN STUDIES**

Analyze the main economic, political, social and security variables in national and regional processes of the Asian continent, understanding influential factors to explain their contemporary situation and their impact at a global level.

#### **LRI3102 ADVANCED TOPICS IN MEXICAN FOREIGN POLICY**

Analyze the social, political and economic transformations of Mexico, the United States, Latin America and the rest of the world, by examining national and international actors that influence international agendas to interpret their impact on Mexican foreign policy.

#### **LRI3072 SELECT TOPICS 1**

Analyze the topics that define Mexico's global agenda for the 21st century, such as migration, terrorism, environment, security, development, armed conflicts, and energy, among others, using international relations frameworks to evaluate their influence and impact in the country.

#### **LRI4052 EUROPEAN UNION STUDIES**

Analyze the structure, institutions, dynamics and decision-making of the European Union, examining treaties and theories to identify the region's main economic, political, social and security processes and their global environment.

#### **LRI4022 ENVIRONMENTAL AND ENERGY GOVERNANCE**

Interpret environmental challenges and the global energy transition within the framework of the Anthropocene, analyzing different approaches to global environmental governance to design solutions to current socio-environmental problems.

#### **LRI4062 INTERNATIONAL MIGRATIONS**

Analyze the actors, patterns and dynamics of international migration to identify their influence on regional processes and cooperation between states, applying analysis models and concepts of international relations.

#### **LRI4012 INTERNATIONAL NEGOTIATION AND CONFLICT**

Evaluate different negotiation strategies, particularly international ones, applying your acquired knowledge to develop proposals for peaceful resolution of international conflicts.

#### **LRI4032 PROFESSIONAL PRACTICES 2**

Apply your acquired knowledge acquired by analyzing international relations issues during your professional practice to develop comprehensive and appropriate solutions to relevant problems in social organizations, public or private institutions.

#### **LRI4042 SELECT TOPICS 2**

Analyze international relations approaches, using current analytical tools to solve contemporary global problems.

#### **LRI4122 GLOBAL POLITICAL ECONOMY**

Interpret global political economy, by analyzing economic globalization theories and concepts, to relate international processes to the dynamics of global economic interaction.

#### **LRI4092 AFRICAN STUDIES**

Analyze African events, actors and global historical context, assessing the diversity of African countries to explain short and long-term phenomena as well as the structural changes they have generated, and the relevance of the region in Mexican foreign policy.

#### **LRI4072 MIDDLE EAST STUDIES**

Analyze the Middle East, comparing the main political, social, economic, ideological-religious and strategic factors to define the causes of the crises of different states and its place in Mexican foreign policy.

#### **LRI4082 STUDIES ON SECURITY**

Understand the different branches of security, through critical discussion from a multidimensional perspective, to analyze security policies at local, national and international level.

#### **LRI4112 FOREIGN POLICY OF THE GREAT POWERS**

Understand the foreign policy of the great powers, studying all aspects in depth to identify the coincidences and differences between each of the great powers with a multidimensional perspective.

#### **LRI4102 SELECT TOPICS 3**

Analyze the main topics of the global agenda, evaluating the main international mechanisms and instruments to identify possible solutions to economic, political, society, security and environmental problems.

### GENERAL STUDIES ELECTIVE IN ARTS \*

#### ART0022 ART AND CULTURE IN THE AMERICAS

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### ART0012 ART, HISTORY AND CULTURE

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### GENERAL STUDIES ELECTIVE IN MATH \*

#### MAT0012 MATH FOR THINKING

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### MAT0022 MATH AND CULTURE

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*

#### COM0012 ETHICS, SOCIETY AND ENVIRONMENT

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### COM0022 BEHAVIOR AND HUMAN DEVELOPMENT

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

### GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*

#### CNE0012 NUTRITION AND LIFE

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

#### CNE0022 EVOLUTION AND BIODIVERSITY

Describe the origin of disease through causal factors to evaluate information sources on human health.

### GENERAL STUDIES ELECTIVE IN HUMANITIES \*

#### HUM0012 ECOSOPHY

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

#### HUM0022 HUMANISTIC THOUGHT

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# MULTICULTURAL RELATIONS

## **LEA1022 CULTURE AND SOCIETY**

Identify the fundamental concepts of anthropology, comparing the social life of human communities, to define cultural diversity.

## **LDE1012 CONSTITUTIONAL LAW**

Identify the constitutional rules and regulations, distinguishing between the dogmatic and organic parts of the magna carta, in order to understand the priority role that they possess when making legal orders.

## **ADM1012 MANAGEMENT FUNDAMENTALS**

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **MAT1052 STATISTICS FOR SOCIAL SCIENCES**

Apply different statistical techniques through different methods of statistical inference to estimate parameters that contribute to decision-making in different social science areas.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LRI1022 FUNDAMENTALS OF INTERNATIONAL RELATIONS**

Identify the most important international relations concepts, analyzing the interaction of international actors to evaluate political processes and their interconnection with economic, social and cultural processes in different parts of the world.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LDE2022 HUMAN RIGHTS**

Interpret the concept of human rights in theory, legislation and jurisprudence, through its categorization in order to examine the different defense methods in the national and international legal system.

**ECO2012 MACROECONOMIC ENVIRONMENT**

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LRI2012 RESEARCH METHODS IN SOCIAL SCIENCES**

Develop a research protocol, following the scientific method and its specific adaptations to the different areas of social sciences, to apply the epistemological and methodological knowledge to a problem and determine possible solutions.

**LEA2042 ANTHROPOLOGICAL THEORY**

Compare the conceptual frameworks of the theoretical trends of anthropological thought, especially of the 20th century, through the comparative and critical study of the main protagonists, ideas and contributions, to identify how professional anthropology was established.

**LRI2032 THEORY OF INTERNATIONAL RELATIONS**

Analyze the evolution of the main approaches of international relations, comparing their characteristics to identify the bases of international affairs.

**LRP2032 COMMUNICATION AND GLOBALIZATION**

Identify the influence of culture and communication on individual identity through intercultural mediation interventions in everyday contexts to understand prejudices and stereotypes.

**LNI1012 INTERNATIONAL BUSINESS STUDIES**

Identify the concepts and fundamental elements that influence international business management using theoretical models to develop an integral perspective of the challenges and areas of opportunity that the globalization of the economy represents for society, government and business.

**LRI2042 GLOBAL GOVERNANCE**

Analyze the main variables that intervene in Governance and Globalization processes, identifying their structural characteristics to examine the regional and global impact.

**LEA2072 FIELD METHODS IN ETHNOLOGY**

Design a logically structured methodological approach, identifying the social situation and transforming it into an anthropological research problem, to practice ethnographic methods and its techniques; understand the importance of ethical commitment with individuals, information, and dissemination of research results.

**LDE3022 PUBLIC INTERNATIONAL LAW**

Identify the constitutional elements of treaties, international customs and general principles and doctrines of international law, analyzing contemporary theories of conventional and customary regulations, binding and non-binding determinations of different international institutions with which Mexico collaborates, to apply them to practical cases.

**LRI3032 GEOPOLITICS AND STRATEGIC ANALYSIS**

Examine the main classical and contemporary approaches to geopolitics, understanding the rise of emerging powers, international security, nuclear proliferation, migratory phenomena, threat of terrorism, environmental security and access to natural resources, applying them to strategic analysis of the global agenda and their consequences in different countries and regions.

**LRM3012 ANCIENT MESOAMERICA**

Understand the different paradigms used in pre-Hispanic Mexico studies, to analyze the uses of pre-Hispanic heritage, evaluating the relationship between the empirical data and the theoretical constructions around the emergence of the complex societies of Mesoamerica and the main reasons for social inequality.

**LRI3012 PUBLIC POLICIES**

Analyze public policy approach by highlighting its differences from other policy and government perspectives, examining the different stages or constituent operations of the policy process (agenda, definition, decision, implementation and evaluation) to identify the specifics and advantages of this type of governing.

**LRM3022 PROFESSIONAL PRACTICES 1**

Apply the knowledge acquired from a multicultural and interdisciplinary approach, applying them in the field, company, organization or research center, to develop professional experience and to handle empirical data.

**LRM3032 MULTICULTURAL THEORY**

Explain the theoretical models associated with multiculturalism, analyzing their implications and applying them in conflicts derived from cultural differences.

**LRI3052 CONTEMPORARY LATIN AMERICA**

Analyze recent history and politics of Latin American countries, as well as their contemporary problems, through a conceptual review of the most important ideas and cases of the dominant countries, to identify this region in the current global environment and to understand some of the academic trends.

**LEA3082 APPLIED ANTHROPOLOGY**

Evaluate the different trends of applied anthropology, through the application of their field methods, to identify and manage social problems to understand if their contribution will solve them.

**LRP3072 COMMUNICATION AND ORGANIZATIONAL DEVELOPMENT**

Identify the concepts and operations of organizational communication, its historical context and internal and external applications in different organizations, designing internal communication strategies that favor organizational culture.

**LEA3122 WORLD ETHNOLOGY**

Identify the world's main cultural areas, identifying their representative sociocultural features to carry out comparative ethnological studies.

**LMK3102 INTERNATIONAL MARKETING**

Identify international and global marketing concepts and theories, applying analysis tools to develop successful strategies for products and services in international markets to improve the position of the company in the market.

**LEA3072 CULTURAL HERITAGE**

Analyze the social, economic and ideological usefulness of cultural heritage, both material and immaterial, by benchmarking concrete cases at a global level to assess their current importance.

**LRM3042 SELECT TOPICS 1**

Analyze anthropology topics, applying methodological and/or technical tools to identify current trends.

**LEA4012 LEGAL ANTHROPOLOGY**

Evaluate the socio-cultural dimension of legal phenomena of minorities through case studies in both national and international contexts, to identify their specifics and situations when applying legal anthropology.

**LRM4032 PRE-HISPANIC ART AND ARCHITECTURE**

Construct a chronological-stylistic framework of pre-Hispanic Mesoamerica art to examine its concepts and functions, ana-

lyzing the relation with socio-political systems, cosmic vision, rituals and ideologies.

**LRI4012 INTERNATIONAL NEGOTIATION AND CONFLICT**

Evaluate different negotiation strategies, particularly international ones, applying your acquired knowledge to develop proposals for peaceful resolution of international conflicts.

**LRM4022 PROFESSIONAL PRACTICES 2**

Apply the knowledge acquired in the classroom, to professional activities in the business, social and/or research areas, to develop useful diagnosis, planning, evaluation and intervention skills to solve problems.

**LRM4012 SELECT TOPICS 2**

Examine management and business skills topics by analyzing theoretical, methodological and technical tools to understand their practical application in multicultural contexts.

**LEA4072 ECONOMIC ANTHROPOLOGY AND GLOBALIZATION**

Compare the theoretical trends related to the investigation of the production, circulation, exchange, distribution, use and consumption of goods in past and contemporary societies, through case studies to explain the processes that create inequality and its implications on social development and globalization.

**LRM4052 DESIGN AND EVALUATION OF MULTICULTURAL PROJECTS**

Design a multicultural project by evaluating a social problem to develop proposals that contribute to its adequate solution.

**LRM4062 ANTHROPOLOGICAL STUDIES OF CONFLICT**

Evaluate the fundamental causes of social conflicts and their outcomes through the anthropological analysis of contemporary cases, interpreting change processes.

**LRM4042 SELECT TOPICS 3**

Examine international sociopolitical analysis topics by comparing theoretical and/or methodological positions to interpret different multicultural contexts.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and to the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

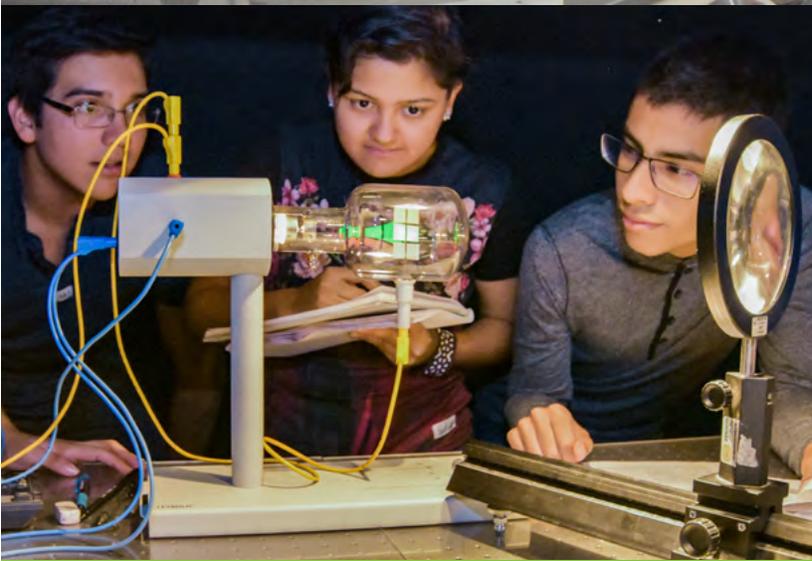
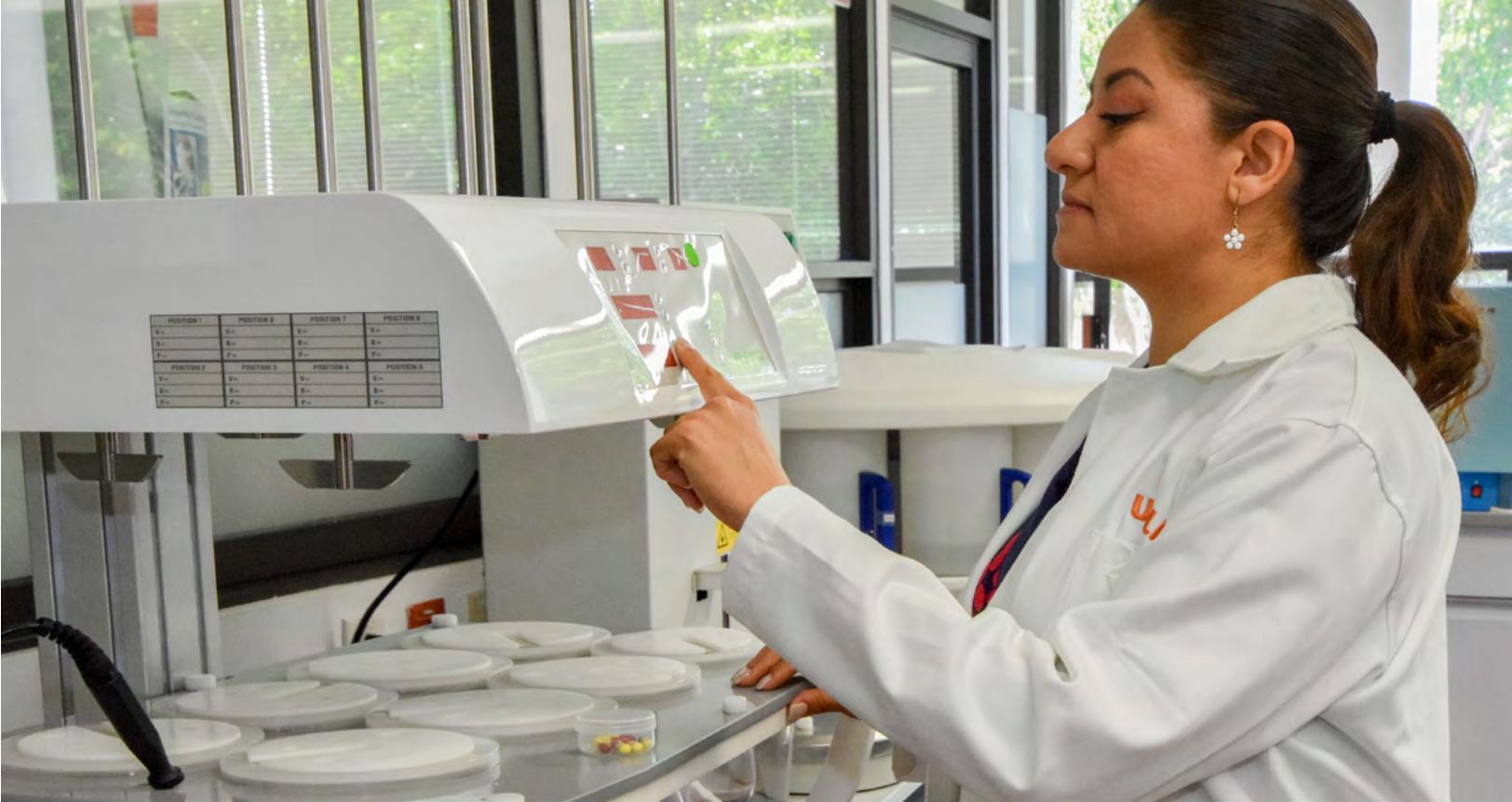
**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*



# ACADEMIC PROGRAMS SCHOOL OF ENGINEERING

# ENVIRONMENTAL ENGINEERING

## **LQI1012 MATERIAL BALANCE**

Develop a clear and systematic methodology using an engineering approach to solve material balances with and without chemical reaction problems.

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **FIS1012 GENERAL PHYSICS I**

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## **FIS1022 GENERAL PHYSICS LAB I**

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

### **QUI2012 BIOCHEMISTRY I**

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

### **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **QUI2102 ANALYTICAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to identify and quantify a substance's components through different analysis methods, to manipulate the material and lab equipment used in analytical chemistry.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **QUI2092 ANALYTICAL CHEMISTRY**

Identify a substance's components through different analysis methods, for the separation, identification and determination of the ions and molecules that form a material.

### **QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

### **MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

### **LBC2022 MICROBIOLOGY LAB**

Develop microbiological techniques by practicing methods used in a lab to isolate, identify, cultivate and control microorganisms.

### **LQI2012 THERMAL MACHINES**

Explain the different types of machines and turbines, using thermodynamics as a basic technique, to apply energy analysis, efficient calculation of thermal machines and analysis of basic and complex thermodynamic cycles.

### **LBC2012 MICROBIOLOGY**

Identify the fundamentals of morphology and functioning of microorganisms, reviewing their structure and metabolism to analyze phenomena related to the world of microorganisms. Describe the relationships between microorganisms and the environment, reviewing their physiological activities in order to establish the beneficial and damaging effects.

### **MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

### **LIN3032 SUSTAINABLE ENGINEERING**

Analyze the main problems related to the sustainable use of the natural resources and the diverse sources of energy; use environmental criteria to identify the environmental impact in the environment, in order to apply this knowledge when implementing sustainable use of resources and energy resources solutions.

### **LQI3052 TRANSPORTATION PROCESSES LAB I**

Identify heat transfer mechanisms through experiments to define the physical properties of fluids.

### **LIN3012 PROFESSIONAL PRACTICES 1**

Analyze basic practical environmental protection problems related to environmental engineering, by applying your technical knowledge to design solutions and solve problems in the various areas, thus developing skills in environmental engineering.

**LQI3012 TRANSPORTATION PROCESSES I**

Compare fluid flow and heat transfer concepts, using theoretical and mathematical analysis of transfer of momentum and heat principles, to calculate the flow in heat transfer pipes and equipment

**LIN3022 SAFETY IN CHEMICAL PROCESSES**

Explain the conceptual bases and applications of occupational safety, process safety and occupational hygiene that apply to companies through the use of theories, models and regulations to understand safety systems.

**LIN3052 ENVIRONMENTAL BIOTECHNOLOGY**

Design biotechnology systems using computer tools to identify the degradation of organic contaminants and the specifications of biochemical reactors, their operating conditions and the nutrient and aeration requirements.

**LQI3132 UNIT OPERATIONS OF FLUID AND HEAT FLOWS LAB**

Analyze the operation of fluid flow and heat transfer equipment, through of laboratory experiments.

**LQI3102 UNIT OPERATIONS OF HEAT FLOWS**

Analyze the behavior of heat flow in equipment, using heat transfer laws and theories to design equipment for industrial applications in the chemical and environmental industry

**LQI3082 UNIT OPERATIONS OF FLUID FLOWS**

Analyze the behavior of fluids using fluid properties and laws associated with equipment design, applying them to solving fluid displacement problems and to select suitable equipment.

**LQI3072 TRANSPORTATION PROCESSES II**

Define mass transfer, through theoretical and mathematical analysis of mass transfer principles, applying them to industry transformation and natural processes.

**LIN3042 SELECT TOPICS 1**

Analyze current topics related to the reduction of pollution, and quality and regulations of products and processes in the environmental protection industry, analyzing theories to identify environmental, industrial and service problems.

**LIN4052 ENVIRONMENTAL ANALYSIS**

Analyze water, air and soil contaminants, describing the technical principles and applying methodologies to identify the organic, inorganic and biological contaminants, and to determine the contamination levels and quality of water, air and soil systems treatment systems.

**LIN4032 CONTROL OF ATMOSPHERIC EMISSIONS**

Classify environmental pollutants and atmospheric pollutant control systems through emission standards, dispersion mathematical models and designs to explain the levels of air pollution and determine the risks of air pollutants.

**LQI4062 UNIT OPERATIONS OF MASS TRANSFER LAB**

Evaluate mass transfer, distillation and extraction processes through lab experiments to acquire skills in the operation of the different types of distillation and extraction towers that exist in the chemical industry.

**LQI4012 UNIT OPERATIONS OF MASS TRANSFER**

Evaluate unit operations that involve of equilibrium stages models, such as distillation, absorption, desorption and extraction, by applying the principles of phase equilibrium and the fundamental laws of mass and energy conservation, to design a suitable process suitable to separate and purify products.

**LIN4012 PROFESSIONAL PRACTICES 2**

Identify the practical environmental protection problems, by applying advanced technical skills and methodologies to develop the skills you learned.

**LIN4022 SELECT TOPICS 2**

Examine current environmental management systems innovation, process redesign and implementation issues by analyzing concepts and simulations to develop design and environmental management strategies.

**LIN4042 TREATMENT OF SEWAGE WATER**

Analyze the operation of wastewater treatment systems by understanding the preliminary, primary and secondary stages to identify the discharge parameters in the water treatment systems and encouraging reuse.

**LIN4072 DESIGN OF ENVIRONMENTAL SYSTEMS**

Design environmental systems by developing environmental engineering techniques and tactics acquired during your studies to create environmental pollution controls.

**LIN4062 CONVENTIONAL AND NON-CONVENTIONAL ENERGY**

Analyze the types of conventional and unconventional energies using an economic model, applying theories and technologies of generation, transformation and use of energies to select those that are less adverse to the environment.

### **LIN4112 ENVIRONMENTAL IMPACT**

Analyze the factors that make up the evaluation of the environmental impact of industrial processes, applying mitigation measures to identify environmental planning and protection tools and propose the required actions when determining the environmental impact of projects.

### **LIN4102 ENVIRONMENTAL PROTECTION**

Apply safety and environmental protection concepts in industries by using theoretical and legal bases; apply this knowledge in the implementation of environmental safety and environmental protection systems.

### **LIN4082 SELECT TOPICS 3**

Understand environmental optimization, life cycle analysis and eco-efficiency by applying environmental engineering processes and methods to develop proposals to protect the environment.

### **LIN4092 WASTE TREATMENT**

Identify the different types of residues and their characteristics and physical and chemical properties by analyzing, comparing and designing regulations, and theoretical and mathematical models to design solid waste treatment and disposal systems that include energy recovery, reuse and recycling.

## **GENERAL STUDIES ELECTIVE IN ARTS \***

### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and to the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## **GENERAL STUDIES ELECTIVE IN MATH \***

### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# BIOMEDICAL ENGINEERING

## **LIS1012 ALGORITHMS AND PROGRAMMING**

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **FIS1012 GENERAL PHYSICS I**

Apply the laws of Newton mechanics using algebra and calculus techniques to solve mechanics problems.

## **FIS1022 GENERAL PHYSICS LAB I**

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

### **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

### **LRT2012 ELECTRONIC CIRCUITS**

Understand electrical circuits' decomposition techniques, by analyzing and designing resistive, inductive and capacitive circuits to use them in more complex electrical circuits.

### **LRT2022 DIGITAL DESIGN**

Know how to design digital systems by using hardware description language (HDL) to analyze the operation of modern digital system.

### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **FIS2012 GENERAL PHYSICS II**

Apply the laws that govern electric and magnetic phenomena using algebra and calculus to develop solutions to electromagnetic problems.

### **LRT2032 ELECTRONIC CIRCUITS LAB**

Analyze dependent source circuits, operational amplifiers and inductive and capacitive elements using simulation tools to analyze and implement their behavior over time.

### **FIS2022 GENERAL PHYSICS LAB II**

Apply the fundamentals of electrostatics, electric properties of materials, electronic circuits and magnetism, using lab equipment and material to compare the results of experiments with theoretical models.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **QUI2012 BIOCHEMISTRY I**

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

### **MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

### **LRT2042 INTEGRATED ELECTRONICS**

Design electronic circuits, both analog and digital, using design methodologies and the equations that govern their operation to connect them to the construction of electronic circuits that meet the requirements imposed on the embedded systems that are part of current technological solutions.

### **LRT2052 INTEGRATED ELECTRONICS LAB**

Analyze the behavior of semiconductor elements such as diodes and transistors, as well as the applications of linear devices and low integration scale integrated circuits by examining the theoretical foundations of integrated electronics to apply them to everyday electronic solutions.

### **QUI2052 CHEMICAL THERMODYNAMICS LAB**

Analyze heat transfer process data by creating and correctly interpreting graphs to obtain information on thermodynamic parameters.

### **MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

### **QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

### **LBC3022 ANATOMY AND PHYSIOLOGY**

Identify the tissues, organs, and systems of an organism with its physiological functions, through the review and analysis of its parts and characteristics, to correlate them with the person's state of health or with a diagnosis or treatment to an illness.

### **LBM3022 BIOMEDICAL INSTRUMENTATION I**

Identify the most common sensors of typical variable measurement in the human body, and apply them to design biomedical instruments, detecting and reconditioning the adequate signals of each type of sensor.

**LBC3032 ANATOMY AND PHYSIOLOGY LAB**

Apply the basic principles of anatomy and human physiology through experimental work that reflects their functionality, to develop practical abilities that allow you to interpret physiological function tests of an organism and its anatomy.

**LBM3032 BIOMEDICAL INSTRUMENTATION LAB I**

Design electronic circuits, using sensors, operational amplifiers, analog-digital/digital-analog converters to interpret acquisition and reconditioning of signals theories and/or physical variables.

**LBM3012 PROFESSIONAL PRACTICES 1**

Integrate the knowledge acquired in biomedical engineering and health - imaging, clinical engineering and rehabilitation, anatomy and physiology, biochemistry, biomaterials, biomedical instruments, among others - to apply them to solve problems, analyzing, summarizing and critically evaluating the decisions made according to realistic specifications in companies or research centers.

**LBM3052 BIOMATERIALS**

Identify the different types of biomaterials, analyzing the theories of structure of materials and tissues, to select and apply them to biomedical equipment that will help practice medicine, carry out clinical analyses, and rehabilitation.

**LBM3042 BIOMECHANICS**

Identify the biologic and mechanical bases of human movement to analyze biomechanical behavior of different articulations and components of the human body, applying mechanics principles.

**LIS3072 TECHNOLOGICAL INNOVATION**

Illustrate technological innovation and patent registration processes using diagnosis and creation strategies and processes to develop proposals that foster creativity, intellectual property in innovation and learning in an organization.

**LBM3082 BIOMEDICAL INSTRUMENTATION II**

Identify the elements and subsystems of biomedical measurement instruments that specialize in developing and evaluating biomedical instruments, integrating the census and processing stages that incorporate them.

**LBM3072 SIGNAL PROCESSING LAB**

Differentiate the behavior of signal processing systems using software and analysis, simulation and implementation of filtering circuits to develop the signal processing module design stage.

**LBM3062 SIGNAL PROCESSING**

Analyze the fundamental principles and techniques of analog and digital filters through MATLAB simulations, to identify their applications in construction of audio equalizers, noise suppressors at 60Hz, elimination of electromagnetic noise and processing of voice and audio.

**LRT3082 CONTROL SYSTEMS**

Design control systems using time and frequency techniques, mathematical models and physical laws of equilibrium to examine the constraints and specifications of the system.

**LBM4052 CLINICAL ENGINEERING**

Use specialized equipment to correctly diagnose and treat patients, using techniques geared towards providing service, verifying performance and evaluating the environmental effects of biomedical equipment.

**LBM4012 PROFESSIONAL PRACTICES 2**

Develop a biomedical engineering and/or health project that involves rehabilitation, biomaterials, imaging, biomedical instruments, anatomy and physiology, among others, in companies or research centers to recommend innovative products, or to improve systems or procedures in engineering and/or health.

**LBM4022 COMMUNICATION SYSTEMS**

Identify the techniques used in digital communication systems by analyzing the theoretical fundamentals and their implementation in software, applying them to advanced topics such as wireless communications, communication networks, telemedicine or collaborative robotics.

**LBM4032 SELECT TOPICS 1**

Analyze medicine topics, with a critical and interdisciplinary point of view, in areas such as generative medicine, and image processing, applying software tools and algorithms to identify research opportunities and come up with innovative solutions.

**LBM4042 SELECT TOPICS 2**

Analyze current topics in electronic biomedical systems and equipment, analyzing the devices implanted in the human body to develop proposals that contribute to improving life quality.

**LBM4072 DESIGN OF BIOMEDICAL SYSTEMS**

Develop biomedical systems by applying theoretical knowledge of biomedical engineering to design a system or device, meeting the function and safety specifications.

### **LBM4092 REHABILITATION ENGINEERING**

Distinguish the different types of joint replacements, selecting the necessary materials and production processes to use as replacements in different parts of the human.

### **LBM4112 TELECOMMUNICATIONS FOR BIOMEDICAL SYSTEMS LAB**

Evaluate the communication methods and techniques that are currently used, as well as the main information transmission channels, applying these when designing biomedical systems.

### **LBM4062 IMAGING SYSTEMS**

Identify the different imaging methods available, analyzing and comparing them to apply them clinically, together with their instructions and counter indications for a precise and opportune diagnosis of pathologies.

### **LBM4102 TELECOMMUNICATIONS FOR BIOMEDICAL SYSTEMS**

Analyze information and communication technologies, the TCP/IP model and communication services (guaranteeing the safety and privacy of medical data) through the use of network communication protocols to remotely monitor a patient's health.

### **LBM4082 SELECT TOPICS 3**

Examine current topics in medical technology management and safety regulations, applying analysis and system design strategies for biomedical systems, equipment and devices, thus developing solutions to public health and rehabilitation problems.

## **GENERAL STUDIES ELECTIVE IN ARTS \***

### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## **GENERAL STUDIES ELECTIVE IN MATH \***

### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by

modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

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# CIVIL ENGINEERING

## **LIC1012 CIVIL ENGINEERING APPLIED DRAWING LAB**

Develop solutions to problems of drawing in two and three dimensions through the application of specialized software tools to identify the fundamentals of civil engineering graphic representation.

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writ-

ing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change

## **FIS1012 GENERAL PHYSICS I**

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## **FIS1022 GENERAL PHYSICS LAB I**

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## **LIC1032 TOPOGRAPHY LAB**

Plan basic planimetric and altimetric surveys using current technological methods and resources, working as a team to develop solutions to basic topography problems.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LIC1022 TOPOGRAPHY**

Understand how to measure distance and horizontal and vertical angles, using calculation tools and equipment to identify the elements of topographic survey.

## **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **LIC2012 INTRODUCTION TO STRUCTURAL ENGINEERING**

Understand the different forces acting on particles and rig-

id bodies, by developing free-body diagrams to analyze their equilibrium conditions, as well as their fastening or bonding devices with other structural elements.

**LIC2022 CONSTRUCTION MATERIALS LAB**

Identify the mechanical properties of construction materials by performing destructive, non-destructive and other quality control tests to understand their relationship and functionality in construction sites.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LAR2012 CONSTRUCTION MATERIALS AND PROCEDURES**

Identify the construction materials and fundamental elements, through the relationship of their properties and characteristics, to distinguish optimization mechanisms in the construction process of a determined building.

**LIC2042 BEHAVIOR OF MATERIALS**

Examine the deformation and stress states of deformable solids to evaluate their behavior, strength, rigidity and stability at different stresses and/or combinations, analyzing pure axial load, shear force and bending momentum.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LIC2032 ISOSTATIC STRUCTURES**

Identify the different structural elements and their internal and external links by analyzing their structural composition in order to assess their degree of static indeterminacy and hyperstaticity.

**LIC2052 STRUCTURES LAB**

Explain structural systems under various load and support conditions using bench scale models to illustrate the application of the principles of solid mechanics in structural engineering.

**MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

**LIC3032 MATRIX ANALYSIS OF STRUCTURES**

Apply the direct stiffness method (displacements method) by analyzing asymmetric and symmetrical flat reticular structures in order to diagram the corresponding internal actions.

**LIC3012 GENERAL HYDRAULICS**

Examine the fundamental principles of hydraulics, by analyzing hydrostatic and water flow in pipes and conduits to design pipelines and conduits and identify the force of water in submerged bodies.

**LIC3042 BASIC INSTALLATIONS**

Determine relevant installations by applying procedures, guidelines and representation elements to determine the building conditions.

**LIC3022 GENERAL HYDRAULICS LAB**

Examine the physical properties of water in relation to hydrostatics, water flow in pipes and conduits, to analyze the principles of fluid mechanics by applying bench scale equipment and other instruments.

**LIC3052 SOIL MECHANICS I**

Distinguish the different types of soils according to their physical and mechanical properties by applying standardized classification systems to define their behavior under different stress and hydraulic flow conditions

**LIC3062 PROFESSIONAL PRACTICES 1**

Apply the knowledge acquired in your studies in job markets to identify, diagnose, evaluate and take part in problem solving through the analysis of real situations.

**LAR3072 CONSTRUCTION COSTS**

Identify the methodology used in determining how much a construction project costs, applying it to create construction budgets, using the main manual and computerized systems available.

**LIC3092 STRUCTURAL DESIGN**

Analyze the behavior, mode and failure mechanism of reinforced concrete elements, applying the theoretical-experimental criteria on which the ultimate strength method is based to dimension reinforced concrete structures.

**LIC3082 HYDROLOGY**

Apply the fundamentals of surface and underground hydrology by analyzing components of the hydrological cycle to evaluate patterns of precipitation, filtration, evapotranspiration and direct runoff.

**LIC3122 SOIL MECHANICS LAB**

Identify the physical properties of soil and describe its load capacity by performing laboratory tests with altered and unchanged samples to understand the relevant parameters of foundation design.

**LIC3112 SOIL MECHANICS II**

Analyze the fundamentals of soil consolidation and its shear stresses by studying load capacity theories to define soil mass behavior in soil push, slope stability and compaction situations.

**LIC3072 DRINKING WATER AND SEWAGE SYSTEMS**

Design the components of a potable water, sanitary sewers and storm drainage systems by applying the fundamentals of hydraulics, using computer tools to develop solutions to problems related to the supply of drinking water and the collection of wastewater and rainwater.

**LIC3102 SELECT TOPICS 1**

Analyze current construction topics by applying modern procedures and tools to identify emerging construction techniques and procedures.

**LAR4062 CONSTRUCTION MANAGEMENT**

Evaluate the different organization and planning processes in architectural project development to improve construction project management.

**LIC4032 SEISMIC ANALYSIS AND DESIGN**

Analyze the behavior of structural materials and systems during seismic activities, applying static and dynamic methods to identify the origin and causes of earthquakes and their effects on buildings.

**LIC4052 GEOMETRIC HIGHWAY DESIGN**

Analyze design procedures to select the route and horizontal and vertical alignment of a highway, examining the specifications and current regulations.

**LIC4022 WATER QUALITY PROCESSES LAB**

Identify the relevant physical, chemical and biological characteristics to treat potable and residual water by applying of bench-scale equipment and other instruments to define the physical-chemical and microbiological parameters necessary for treatment.

**LIC4062 PROFESSIONAL PRACTICES 2**

Evaluate problems in civil engineering by applying technical knowledge in work environments to recommend specific, objective, creative and critical solutions to real problems.

**LIC4012 WATER QUALITY PROCESSES**

Identify the treatment needs of municipal drinking water and wastewater to design conventional treatment systems by analyzing their physical, chemical and biological principles.

**LIC4042 SELECT TOPICS 2**

Examine current environmental issues by analyzing theoretical concepts to understand air, water and soil contamination analysis techniques.

**LIC4072 ANALYSIS AND DESIGN OF WATER RESOURCE EXPLOITATION**

Design dams and their components as well as pumping systems using standardized procedures to develop solutions to hydraulic construction site problems.

**LIC4082 COMPUTER STRUCTURAL ANALYSIS AND DESIGN**

Apply computer tools to analyze and design reinforced concrete and steel structures by examining various live load and earthquake conditions

**LIC4122 FOUNDATIONS**

Apply standardized procedures to design shallow and deep foundations, analyzing the information obtained in subsurface exploration and geophysics studies.

**LIC4102 PAVEMENT DESIGN AND CONSERVATION**

Analyze the current methodologies of mechanical behavior of rigid and flexible pavements, identifying their components' properties to properly design and maintain them

**LIC4112 PAVEMENT LAB**

Identify the physical properties of soil as well as the standardized tests that exist to describe and classify them through lab tests.

**LIC4092 SELECT TOPICS 3**

Examine current structural topics, identifying theoretical proposals to analyze their performance under various stress loads.

**GENERAL STUDIES ELECTIVE IN ARTS \***

**ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

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Identify how human beings define reality and expresses it,

both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

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#### **MAT0022 MATH AND CULTURE**

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# ENERGY ENGINEERING

## **LIS1012 ALGORITHMS AND PROGRAMMING**

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## **LQI1012 MATERIAL BALANCE**

Develop a clear and systematic methodology using an engineering approach to solve material balances with and without chemical reaction problems.

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

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Solve equations by applying the theoretical processes of lin-

ear algebra and using technological resources to model applied sciences phenomena.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **FIS1012 GENERAL PHYSICS I**

Apply the laws of Newton mechanics using algebra and calculus techniques to solve mechanics problems.

## **FIS1022 GENERAL PHYSICS LAB I**

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds

**MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**QUI2052 CHEMICAL THERMODYNAMICS LAB**

Analyze heat transfer process data by creating and correctly interpreting graphs to obtain information on thermodynamic parameters.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

**LRT2012 ELECTRONIC CIRCUITS**

Understand electrical circuits' decomposition techniques, by analyzing and designing resistive, inductive and capacitive circuits to use them in more complex electrical circuits.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LRT2032 ELECTRONIC CIRCUITS LAB**

Analyze dependent source circuits, operational amplifiers and inductive and capacitive elements using simulation tools to analyze and implement their behavior over time.

**LQI2012 THERMAL MACHINES**

Explain the different types of machines and turbines, using thermodynamics as a basic technique, to apply energy analysis, efficient calculation of thermal machines and analysis of basic and complex thermodynamic cycles.

**MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential

statistical methodologies to estimate parameters and contribute to decision-making.

**LIY3042 ADVANCED ELECTRICAL CIRCUITS**

Design complex circuits by using the Laplace transform and two-port network parameters to develop circuit analysis and cascade connections of various circuits as well as specify advanced electrical systems required for electrical power management.

**LIY3012 BASIC ELECTRONICS**

Analyze how systems work by studying cases and solving real problems in the job market to identify electronic systems that support energy storage, distribution, control and management activities and thus achieve greater efficiency and lower production costs.

**LIY3052 ADVANCED ELECTRICAL CIRCUITS LAB**

Design AC electric circuits by interconnecting their different elements to identify their behavior and operation.

**LQI3052 TRANSPORTATION PROCESSES LAB I**

Identify heat transfer mechanisms through experiments to define the physical properties of fluids.

**LIY3022 PROFESSIONAL PRACTICES 1**

Analyze energy industry problems through professional practices to develop job skills and keep up to date in product development, and process control and innovation in this industry.

**LQI3012 TRANSPORTATION PROCESSES I**

Compare fluid flow and heat transfer concepts, using theoretical and mathematical analysis of transfer of momentum and heat principles, to calculate the flow in heat transfer pipes and equipment.

**LIY3032 SAFETY IN PROCESSES AND ENVIRONMENTAL PROTECTION**

Identify the conceptual foundations and safety and protection applications of the work environment in industries through the use of models and specific energy computer tools, as well as associated regulations to apply security systems in the energy industry.

**LIY3092 GEOTHERMAL, HYDRAULIC AND NUCLEAR ENERGY**

Build energy production systems by harnessing geothermal, hydro and nuclear energy sources to create more efficient renewable resources and reduce generation, distribution, storage and quality costs.

**LIY3072 SOLAR AND WIND ENERGY**

Create solar and wind energy production designs by applying different energy propagation systems to identify renewable resources and reduce generation, distribution, storage and quality costs.

**LIY3102 INSTRUMENTATION AND CONTROL**

Understand the characteristics of an electronic instrumentation system with control alternatives by using sensor theory of different parameters, controllers and actuators to develop energy systems instruments and controls.

**LIY3062 INSTRUMENTATION AND CONTROL LAB**

Analyze the different types of electronic instruments, using lab equipment to identify the parameters as well as the selection and specification of electronic control models of energy systems.

**LQJ3132 UNIT OPERATIONS OF FLUID AND HEAT FLOWS LAB**

Analyze the operation of fluid flow and heat transfer equipment, through of laboratory experiments.

**LIY3082 UNIT OPERATIONS OF FLUID AND HEAT FLOWS**

Analyze the behavior of fluids using the properties and laws associated with heat transfer, in order to apply this knowledge to solve engineering problems, and to select and design equipment to avoid the energy loss.

**LQJ3072 TRANSPORTATION PROCESSES II**

Define mass transfer, through theoretical and mathematical analysis of mass transfer principles, applying them to industry transformation and natural processes.

**LIY4042 PETROCHEMICAL PROCESS ENGINEERING**

Compare the input and output interfaces of a process simulator, by simultaneously solving the material, energy and entropy balances of the system, as well as the thermodynamic properties of the components involved and the design parameters of each of equipment in order to consider the simulator as a tool to evaluate the flowchart of a petrochemical process.

**LIY4052 PETROCHEMICAL PROCESS ENGINEERING LAB**

Compare different petrochemical process flow charts using commercial process simulators in order to evaluate the effect of different design and operation variables on process efficiency.

**LQJ4062 UNIT OPERATIONS OF MASS TRANSFER LAB**

Evaluate mass transfer, distillation and extraction processes

through lab experiments to acquire skills in the operation of the different types of distillation and extraction towers that exist in the chemical industry.

**LMT3052 ELECTRICAL MACHINES**

Understand the basic principles of direct current machines' operation and control, transformers and AC machines, by analyzing their electromagnetic properties and their different industrial applications, in order to define the preponderant role of electric machines in a full power electrical system.

**LQI4012 UNIT OPERATIONS OF MASS TRANSFER**

Evaluate unit operations that involve of equilibrium stages models, such as distillation, absorption, desorption and extraction, by applying the principles of phase equilibrium and the fundamental laws of mass and energy conservation, to design a suitable process suitable to separate and purify products.

**LIY4012 PROFESSIONAL PRACTICES 2**

Apply advanced technical knowledge by analyzing problems of the energy industry, to identify solutions on various topics.

**LIY4032 PETROLEUM CHEMISTRY AND CATALYTIC REACTORS**

Evaluate the best operating conditions of catalytic reactors by comparing different models, methods of petroleum fractions characterization, presence of metals, heteroatoms or asphaltenes; organize the process of elaboration, separation, conversion and innovation of these products and their derivatives.

**LIY4022 SELECT TOPICS 1**

Analyze regulation, energy policy and operation of the energy and fuel industry topics, analyzing theories and methodologies to relate their characteristics to energy engineering.

**LIY4072 BIOENERGY**

Analyze the main problems related to obtaining energy from biological materials and diverse energy sources using design criteria and energy balances to apply this knowledge to design new strategies to ensure that biofuel production proposals respect the environment, the economy and public policies.

**LIY4062 DESIGN OF ENERGY PROJECTS**

Design a project to create, use, transmit and/or store energy using technical, logistical, legal, economic and environmental guidelines to understand the requirements and guidelines when managing energy projects.

### **LIY4092 REFINING AND PROCESSING FOSSIL FUELS**

Analyze unit operations that make up fossil energy processing using theoretical foundations related to the origin, exploration, exploitation, management, distribution and storage of fossil fuels, to apply this knowledge to solve oil and gas production engineering, and refining problems in the petrochemical industry.

### **LIY4082 SELECT TOPICS 2**

Examine topics related to the behavior and operation of hydrocarbon deposits and the mechanical properties of rocks, using simulations, calculations and applied research to identify the hydrocarbon exploitation process in an efficient context.

### **LIY4102 SELECT TOPICS 3**

Analyze topics related to the management and specification of electrical distribution systems in low- and high-voltage electrical networks by analyzing methodologies to identify lighting, heating, ventilation and air conditioning systems with electrical energy.

## **GENERAL STUDIES ELECTIVE IN ARTS \***

### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

## **GENERAL STUDIES ELECTIVE IN MATH \***

### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

## **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

**\*UDLAP's General Education (GenEd) courses.**

# FOOD INDUSTRY ENGINEERING

## **LQI1012 MATERIAL BALANCE**

Develop a clear and systematic methodology using an engineering approach to solve material balances with and without chemical reaction problems.

## **QUI1022 GENERAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **QUI1012 GENERAL CHEMISTRY**

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of lin-

ear algebra and using technological resources to model applied sciences phenomena.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **FIS1012 GENERAL PHYSICS I**

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## **FIS1022 GENERAL PHYSICS LAB I**

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## **QUI1042 ORGANIC CHEMISTRY LAB I**

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **QUI1032 ORGANIC CHEMISTRY I**

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the rela-

relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

#### **QUI2012 BIOCHEMISTRY I**

Identify the fundamentals of biochemistry by reviewing chemistry, the structure of macromolecules and the basic equations to interpret and analyze metabolism. Describe the relationships between macromolecules, comparing them to different scales to relate their structure to the function they perform and their consequences at the cellular and organism level.

#### **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

#### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **LNA2012 PHYSICAL PROPERTIES OF FOOD LAB**

Evaluate different physical properties of food through experiments using equipment and processes, as well as the associated thermodynamic bases, to create information to design and analyze processes related to food processing.

#### **QUI2102 ANALYTICAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to identify and quantify a substance's components through different analysis methods, to manipulate the material and lab equipment used in analytical chemistry.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **LNA2022 PHYSICAL PROPERTIES OF FOOD**

Examine the different properties of foods, including those of thermodynamic type, through theoretical concepts such as experimental foundations, to create information that allows food handling and transformation process design.

#### **QUI2092 ANALYTICAL CHEMISTRY**

Identify a substance's components through different analysis

methods, for the separation, identification and determination of the ions and molecules that form a material.

#### **LNA2032 BIOCHEMISTRY OF FOOD**

Identify the main metabolic paths in living organisms and the changes they cause in food of plant or animal origin by identifying carbohydrates, proteins, lipids and fats, natural pigments, and antioxidant compounds to explain the proper handling of fresh produce and to obtain processed products.

#### **MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

#### **LNA2042 BIOCHEMISTRY OF FOOD LAB**

Identify the characteristics of the molecular components of food through various experiments and knowledge of the associated theoretical principles, in order to describe the behavior of food components, in their natural state and when subjected to transformations.

#### **LBC2022 MICROBIOLOGY LAB**

Develop microbiological techniques by practicing methods used in a lab to isolate, identify, cultivate and control microorganisms.

#### **LBC2012 MICROBIOLOGY**

Identify the fundamentals of morphology and functioning of microorganisms, reviewing their structure and metabolism to analyze phenomena related to the world of microorganisms. Describe the relationships between microorganisms and the environment, reviewing their physiological activities in order to establish the beneficial and damaging effects.

#### **MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

#### **LNA3062 INNOVATION IN THE FOOD INDUSTRY**

Describe the elements of food preservation technology through the relationship of theoretical and practical concepts that underpin new trends in processing and conservation to develop representative products.

#### **LNA3032 FOOD MICROBIOLOGY LAB**

Interpret the results obtained from microbiological analyses and apply the standards of food safety by working in laboratory in sterile conditions to handle, cultivate and con-

serve microorganisms and avoid the potential of corruption or pathogenicity.

**LNA3052 RHEOLOGY AND FLUID FLOW IN FOOD LAB**

Identify the rheological characteristics of food fluids to measure their rheological parameters, as well as the equipment and instruments used, through experiments and knowledge of the associated theory, to solve problems related to the transport of fluids in food handling and processing.

**LNA3022 FOOD MICROBIOLOGY**

Examine the importance of microorganisms in relation to food spoilage and disease prevention, identifying their effects on various factors intrinsic and extrinsic to food in order to establish a good sanitary quality of a product and its handling.

**LNA3012 PROFESSIONAL PRACTICES I**

Analyze problems in the food industry related to science, technology or food engineering, applying classical technical knowledge to solve problems in various areas and developing skills in food industry engineering.

**LNA3042 RHEOLOGY AND FLUID FLOW IN FOOD**

Analyze unit operations by applying the concepts of momentum transport, pipeline flow and rheological properties of fluids in food, to design equipment that transports and manages fluids in the food industry.

**LNA3092 PHYSICAL CHEMISTRY OF FOOD**

Analyze the physicochemical principles governing water activity and dispersion states, through their application to food systems, in order to use them to develop food products whose quality, stability and safety are guaranteed.

**LNA3122 THERMAL TREATMENT PROCESSES IN FOODSTUFF LAB**

Analyze different unit operations through heat transfer experiments, equipment and processes to solve problems related to the heating and cooling of food during processing and storage.

**LNA3142 PROCESSES FOR FOOD DEHYDRATION AND SEPARATION LAB**

Analyze different unit operations used for food handling through experiments that use equipment and processes based on mass transfer, as well as the knowledge of the associated theory, to solve problems related to drying, extraction and distillation in food.

**LNA3082 FOOD CHEMISTRY LAB**

Explain the changes that can occur in food, to avoid deterioration, prevent chemical change or improve a food; understand the relationship of its components: water, carbohydrates, lipids, protein, enzymes and pigments.

**LNA3102 MODELING IN FOOD PROCESS ENGINEERING**

Apply general concepts of problem solving in food engineering, using a formal methodology, and definition of algorithms to solve the problem and create interactive food engineering programs for different processes.

**LNA3112 THERMAL TREATMENT PROCESSES IN FOODSTUFF**

Analyze of heat treatments processes in food, applying unit operations based on heat transport, heat exchange, evaporation, heat treatment, refrigeration and freezing, to understand the equipment and processes that conserve food by thermal methods.

**LNA3132 PROCESSES FOR FOOD DEHYDRATION AND SEPARATION**

Analyze the processes for the dehydration and separation of food, applying unit operations concepts and calculations that are based on mass transport, dehydration, extraction and distillation, to design equipment that conserve food and that separate food components.

**LNA3072 FOOD CHEMISTRY**

Understand the chemical structures of the major food components, analyzing the key chemical and biochemical changes of food and changes affecting its composition, structure, quality and safety to establish the influence on its physical, chemical, nutritional and organoleptic properties and to create new solutions, products, systems, components and/or processes.

**LNA4022 FOOD ANALYSIS**

Analyze the main methods used by interpreting their fundamentals to propose modifications without affecting the accuracy of the results.

**LNA4032 FOOD ANALYSIS LAB**

Identify the macro and micro components in food by analyzing the results obtained in experiments; apply the concepts and theories of physical chemistry and food analysis.

### **LNA4052 FOOD MANAGEMENT AND SAFETY SYSTEMS LAB**

Apply quality control and quality assurance tools in the food industry, knowing national and international regulations and codes of ethics to propose solutions related to quality assurance and food safety.

### **LNA4012 PROFESSIONAL PRACTICES 2**

Solve advanced practical problems in the food industry or scientific challenges related to science, technology or food engineering, by applying advanced technical knowledge.

### **LNA4042 FOOD MANAGEMENT AND SAFETY SYSTEMS**

Explain quality and safety management systems in the food industry, through the procedures and food safety regulations used to control, ensure and improve the quality of products and processes.

### **LNA4062 SELECT TOPICS 1**

Analyze food industry engineering topics related to food processing and nutritional value, analyzing theoretical foundations to address and solve problems in this area.

### **LNA4092 QUALITY ATTRIBUTES OF FOOD**

Analyze the quality attributes of food, selecting the correct evaluation techniques to manufacture them in relation to the production process and subsequent handling.

### **LNA4072 DESIGN OF NEW FOOD PRODUCTS**

Apply food product and process design methodologies, analyzing the results obtained in the lab to create new high quality solutions, products, ingredients and/or processes that compete in the processed food market.

### **LNA4102 QUALITY ATTRIBUTES OF FOOD LAB**

Evaluate food quality attributes by practicing analysis techniques related to their attributes, to analyze the appropriate type of quality analysis according to the type of food.

### **LNA4082 TECHNOLOGIES FOR FOOD PROCESSING**

Apply food conservation processes, explaining the fundamental principles that support them to process innocuous and quality food according to regulations and market requirements.

### **LNA4112 SELECT TOPICS 2**

Analyze food industry engineering topics related to labeling and additive regulations, identifying fundamental principles to solve problems in the food industry.

### **LNA4122 SELECT TOPICS 3**

Apply food industry engineering topics relating to equipment design and food processing plants, reviewing relevant concepts to specify and design food industry facilities.

## **GENERAL STUDIES ELECTIVE IN MATH \***

### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

## **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

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Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

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Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

*\*UDLAP's General Education (GenEd) courses.*

# SUPPLY CHAIN AND LOGISTICS ENGINEERING

## **ADM1012 MANAGEMENT FUNDAMENTALS**

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LII2012 UNCERTAINTY ANALYSIS I**

Analyze industrial engineering uncertainties by studying random variables and developing mathematical models to identify their behavior, to estimate and/or predict their frequency, and to quickly and accurately evaluate the results.

## **LII2022 COMPUTER APPLICATIONS IN THE INDUSTRY**

Analyze industrial engineering and logistics problems that influence decision-making through mathematical modeling, flowcharts and specialized software to provide solutions to complex iterative optimization problems.

## **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

**ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LI12032 UNCERTAINTY ANALYSIS II**

Build mathematical models that represent the behavior of random phenomena, by applying probability theory concepts and theorems and basic statistics, to describe possible outcomes and assign probabilities to different engineering events.

**LCS2012 PURCHASING AND PROVISIONING IN SUPPLY CHAINS**

Develop a purchasing and provisioning strategy for a company, through an effective integration of key indicators, such as delivery times and quality, to identify the most important factors of a successful strategy.

**LCS2032 PACKAGING, CONTAINERS AND CRATING**

Design packaging according to the product's characteristics; determine what material, design the packaging and use adequate packaging equipment to protect the product as it moves through the supply chain.

**LI12062 ECONOMIC ENGINEERING**

Analyze the economic sensitivity of engineering proposals by proposing alternative economic scenarios, and applying financial valuation criteria to define their feasibility.

**LCS2022 HEURISTIC METHODS**

Design feasible solutions using constructive and improvement heuristics in logistics and manufacturing.

**LI12042 OPTIMIZATION THEORY AND TECHNIQUES**

Analyze practical problems by applying mathematical programming models and methods to develop optimal solutions to make decisions.

**LDE3012 FOREIGN TRADE AND INTERNATIONAL TREATIES**

Analyze the regulation of operations in foreign trade, investigating the applicable national and international regulations, to identify problems in international trade.

**LI13042 ANALYTICAL METHODS IN SYSTEMS I**

Interpret population characteristics by analyzing information from a sample and applying parametric and non-parametric methods (free of distribution) to explain, estimate, and test assumptions and come up with decisions.

**LCS3022 METAHEURISTIC METHODS**

Analyze the quality, sturdiness and efficiency criteria through search methods of feasible solutions to understand the relevance of metaheuristics in solving complex logistics problems.

**LCS3012 PROFESSIONAL PRACTICES 1**

Identify logistics and supply chain problems by performing specific tasks in a product and/or service company to understand adaptation situations in a work environment.

**LI13052 INTEGER AND COMBINATORIAL PROGRAMMING**

Analyze combinatorial optimization problems through mathematical modeling and combinatorial and integer programming techniques to develop optimal solutions to a company's production, logistics and management areas.

**LI13062 LEAN SYSTEMS**

Develop work system improvement proposals using lean manufacturing concepts and techniques, in order to provide solutions that reduce waste and cycle times in manufacturing, services and administrative processes.

**LCS3042 STORAGE AND LOGISTICS**

Develop solutions to problems related to the design and operation of warehouses through mathematical programming and implementation of algorithms to identify the competitive advantages in the supply chain.

**LI13112 ANALYTICAL METHODS IN SYSTEMS LAB**

Develop solutions to probability and statistics engineering problems using computer tools and specialized software to carry out the mathematical calculations to interpret the results.

**LCS3032 MATERIAL HANDLING IN LOGISTICS AND SUPPLY CHAINS**

Analyze the fundamental concepts of material handling through mathematical programming models for network flows to plan efficient inventories.

**LMK3102 INTERNATIONAL MARKETING**

Identify international and global marketing concepts and theories, applying analysis tools to develop successful strat-

egies for products and services in international markets to improve the position of the company in the market.

#### **LII3102 ANALYTICAL METHODS IN SYSTEMS II**

Build regression models, applying statistics and probability, to explain the behavior of a dependent variable using independent ones thus using them as prediction and/or prognosis models. Design probabilistic and non-probabilistic samples, applying probability and statistics, to produce information with statistical representation to validate assumptions about the target population.

#### **LCS3052 INVENTORY MODELS AND QUEUING**

Design inventory models, applying deterministic mathematical models, as well as those that include demand uncertainty and/or delivery times to develop solutions that contribute to reducing the cost of inventory. Design waiting lines through the application of queuing theory, to develop solutions that increase efficiency when providing services

#### **LCS3062 SELECT TOPICS 1**

Analyze supply chain optimization topics by building mathematical models to develop solutions to problems in service and manufacturing companies.

#### **LAD4042 PROJECT MANAGEMENT**

Apply project management techniques and tools by organizing processes and phases, to identify organizational, human and technical aspects.

#### **LII4032 SIMULATION OF INTEGRATED SYSTEMS LAB**

Develop discrete models that predict the results of personnel, materials, energy, machines and information systems using simulation software to provide solutions that anticipate decisions about installation and modification of such systems and guarantee their performance.

#### **LCS4022 FACILITY LOCATION**

Design a distribution network, using mathematical programming models and techniques, both exact and approximate, to evaluate how a supply chain works.

#### **LNI4022 INTERNATIONAL LOGISTICS**

Understand logistic activities in international companies, analyzing theoretical transport systems, logistics operations, inventories and operational logistical costs models to identify the most efficient ones.

#### **LII4052 PRODUCTION PLANNING AND CONTROL**

Plan a goods or services production system by creating an ag-

gregate plan, which includes a master production plan, a plan to supply materials, and control actions to develop solutions that increase the efficiency and effectiveness of processes.

#### **LCS4012 PROFESSIONAL PRACTICES 2**

Evaluate the problems seen during your professional practices, analyzing the logistics and supply chain knowledge acquired to develop optimal solutions and make decisions in a work environment.

#### **LII4022 SIMULATION OF INTEGRATED SYSTEMS**

Build a model that represents all elements of a real system, using simulation languages, probability, and statistics, in order to develop proposals and/or alternative scenarios that improve the original system.

#### **LCS4032 CASES IN LOGISTICS**

Analyze customer or market problems through logical, conceptual, deductive and critical thinking, to develop solutions to complex logistics systems and propose integral solutions for supply chains.

#### **LCS4052 DESIGN IN LOGISTICS AND SUPPLY CHAINS**

Design distribution routes, using mathematical programming models and solution techniques to develop efficient strategies to distribute goods and services.

#### **LCS4042 MANAGEMENT IN LOGISTICS AND SUPPLY CHAINS**

Analyze the essential operations of logistics and supply chains through an integral process focus, to develop alternatives that improve the performance of logistics systems.

#### **LCS4062 TECHNOLOGY IN LOGISTICS AND SUPPLY CHAINS**

Compare the use of information technologies (IT) in the different parts of a supply chain, identifying the competitive advantages that may be gained by their implementation in order to select those that support the company's logistics system.

#### **LCS4072 SELECT TOPICS 2**

Examine logistics operations topics through a detailed research of technological offers to identify those that will better meet a company's requirements.

#### **LCS4082 SELECT TOPICS 3**

Analyze logistics quality topics using concepts of time series, information technologies, geographic information systems, as well as mathematical programming to apply them to practical cases.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its dif-

ferent historical nuances to base its pertinence in contemporary culture.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

*\*UDLAP's General Education (GenEd) courses.*

# ROBOTICS AND TELECOMMUNICATIONS ENGINEERING

## LIS1012 ALGORITHMS AND PROGRAMMING

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1032 LINEAR ALGEBRA

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## LIM1012 COMPUTERIZED DRAWING LAB

Use CAD programs to create model and/or assembly blueprints, taking into account the standards of technical drawing, to apply them as a means of communication in activities related to manufacturing and mechanical design.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT2012 CALCULUS II

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## LRT2012 ELECTRONIC CIRCUITS

Understand electrical circuits' decomposition techniques, by analyzing and designing resistive, inductive and capacitive circuits to use them in more complex electrical circuits.

## LRT2022 DIGITAL DESIGN

Know how to design digital systems by using hardware description language (HDL) to analyze the operation of modern digital system.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing spe-

cialized information and applying academic and scientific standards to disseminate knowledge.

**FIS2012 GENERAL PHYSICS II**

Apply the laws that govern electric and magnetic phenomena using algebra and calculus to develop solutions to electromagnetic problems.

**LRT2032 ELECTRONIC CIRCUITS LAB**

Analyze dependent source circuits, operational amplifiers and inductive and capacitive elements using simulation tools to analyze and implement their behavior over time.

**FIS2022 GENERAL PHYSICS LAB II**

Apply the fundamentals of electrostatics, electric properties of materials, electronic circuits and magnetism, using lab equipment and material to compare the results of experiments with theoretical models.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**MAT2032 CALCULUS III**

Apply vector calculus methods as a tool to develop two-dimensional and three-dimensional models of various technological processes studying curves and surfaces in space, as well as the concepts of differentiability and integrability in scalar and vector fields.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LRT2042 INTEGRATED ELECTRONICS**

Design electronic circuits, both analog and digital, using design methodologies and the equations that govern their operation to connect them to the construction of electronic circuits that meet the requirements imposed on the embedded systems that are part of current technological solutions.

**IM2022 EQUILIBRIUM OF RIGID BODIES**

Analyze the loads and constraints that maintain equilibrium in particles and rigid bodies by applying static and two-dimensional equilibrium equations to develop solutions to engineering problems that involve structural of reinforcements, racks and machines components.

**LRT2052 INTEGRATED ELECTRONICS LAB**

Analyze the behavior of semiconductor elements such as di-

odes and transistors, as well as the applications of linear devices and low integration scale integrated circuits by examining the theoretical foundations of integrated electronics to apply them to everyday electronic solutions.

**MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

**LIS1022 OBJECT ORIENTED PROGRAMMING**

Describe object-oriented paradigms using UML (Unified Modeling Language) notation and Java programming language to implement the requirements of an application.

**LRT3022 FUNDAMENTALS OF COMMUNICATIONS**

Analyze signals in time and frequency, using software and experiments to design analog and digital communications systems.

**LMT3032 SIGNALS AND INSTRUMENTATION LAB**

Build circuits using operational amplifiers as functional blocks by using the main types of sensors and transducers to use them and implement them in data acquisition systems, and analyze their more complex functions.

**LRT3012 PROFESSIONAL PRACTICES 1**

Apply knowledge acquired in robotics and telecommunications such as robotics vision, telecommunication systems, network configuration, robot kinematics and dynamics and automation, to develop solutions by analyzing, synthesizing and critically evaluating the decisions taken in industrial or research projects.

**LMT3022 SIGNALS AND INSTRUMENTATION**

Develop detection systems, electronic sensors, and signal conditioning, recording and deploying them using electronic circuit tools that meet design specifications to analyze electrical signals with regards to time and frequency.

**LRT3032 EMBEDDED SYSTEMS**

Apply hardware description languages to design a processor, by integrating the fundamentals of logical design to develop systems embedded in reconfigurable devices.

**LRT3042 ROBOT KINETICS AND DYNAMICS**

Design a robot using open access simulation tools to identify its behavior, use and operation, as well as the rotations and translations of the links that compose it.

**LRT3072 DIGITAL COMMUNICATION**

Analyze signals in time and frequency using software and

communications equipment to identify and model their application in new generation digital communications systems.

#### **LIS3072 TECHNOLOGICAL INNOVATION**

Illustrate technological innovation and patent registration processes using diagnosis and creation strategies and processes to develop proposals that foster creativity, intellectual property in innovation and learning in an organization.

#### **LRT3052 MACHINES AND MECHANISMS**

Identify the basic principles of mechanisms, operation and control of direct current machines, transformers and AC machines analyzing kinematics and describing their electromagnetic properties and their different industrial applications, to define the importance of mechanisms and electrical machines in a complete power electrical system.

#### **LRT3082 CONTROL SYSTEMS**

Design control systems using time and frequency techniques, mathematical models and physical laws of equilibrium to examine the constraints and specifications of the system.

#### **LRT3062 SELECT TOPICS 1**

Analyze telecommunications and optical communications topics, using tools and specialized software to develop innovative solutions.

#### **LRT4062 POWER ELECTRONICS**

Identify the different power converters used in to convert electrical energy, describing the properties of direct current and alternating current, as well as of electronic devices in energy conversion, to understand its applications.

#### **LRT4052 COMPUTER NETWORKS LAB**

Apply computer network concepts, such as networks design and monitoring and use of software tools and network equipment, to analyze TCP/IP protocols and apply this traffic analysis in a communications network.

#### **LRT4022 PROFESSIONAL PRACTICES 2**

Develop robotics and/or telecommunication projects involving robotics vision issues, network configuration, robot kinematics and dynamics, and automation using the experience-based learning approach to provide solutions for industry or research centers that improve engineering systems or procedures.

#### **LRT4042 COMPUTER NETWORKS**

Analyze the fundamental concepts of a communications network using the TCP/IP and ISO/OSI model, access techniques

and data communications to understand the design process and global operation of a communications network and the Internet.

#### **LRT4032 SELECT TOPICS 2**

Examine Industry 4.0 topics by describing the technological bases of cyber-physical systems, Internet of Things and cloud computing to develop innovative and high-impact solutions to real-life problems.

#### **LRT4012 VISION IN ROBOTICS**

Develop systems based on artificial vision of various types of robots, using pattern and image segmentation, enhancement, restoration, retrieval, interpretation and recognition to explain how robotic arms, mobile robots, aerial robots and industrial robots work.

#### **LRT4122 COMMUNICATIONS VIA FIBER OPTICS**

Design new generation optical communications systems, analyzing electromagnetic waves within optical fiber channels; model optical communications systems using specialized software to compare theory and practice when developing new internet services.

#### **LRT4102 DESIGN OF ROBOTIC SYSTEMS**

Design an industrial or service robot that integrates the mechanical design and electronics programming controls in embedded systems to understand the economic and time requirements of the specific objectives and obtain a final functional prototype.

#### **LRT4082 APPLIED ROBOTICS LAB**

Design robotic systems using global design methodologies, selecting its components to develop solutions that meet the specifications of an application.

#### **LRT4112 WIRELESS AND MOBILE NETWORKS**

Apply tools to analyze, model and simulate network, wireless, cellular, local mobile, ad hoc and sensor networks interconnectivity protocols, using wireless communication systems design and construction mathematical fundamentals and techniques to provide solutions to mobile network problems, and understand future trends in wireless communication systems.

#### **LRT4072 ROBOTICS AND AUTOMATION**

Develop industrial automation projects using modern design strategies and safety measures that incorporate robots as a tool for proposals that improve industrial production and ensure the safety of human and material resources.

**LRT4092 SELECT TOPICS 3**

Examine automatic control topics to design fault detection algorithms in robotic arms, drones and mobile robots, using signal analysis strategies of different components of the system.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# COMPUTER SYSTEMS ENGINEERING

## LIS1012 ALGORITHMS AND PROGRAMMING

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1032 LINEAR ALGEBRA

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## ESP0012 ACADEMIC REASONING \*

academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LIS1022 OBJECT ORIENTED PROGRAMMING

Describe object-oriented paradigms using UML (Unified Modeling Language) notation and Java programming language to implement the requirements of an application.

## MAT2012 CALCULUS II

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## LRT2022 DIGITAL DESIGN

Know how to design digital systems by using hardware description language (HDL) to analyze the operation of modern digital system.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## LIS2032 DATA STRUCTURES

Identify the characteristics, advantages and disadvantages of existing data structure management algorithms by implementing and analyzing them to develop solutions that contribute to the creation of complex computational systems.

## FIS2012 GENERAL PHYSICS II

Apply the laws that govern electric and magnetic phenomena using algebra and calculus to develop solutions to electromagnetic problems.

**FIS2022 GENERAL PHYSICS LAB II**

Apply the fundamentals of electrostatics, electric properties of materials, electronic circuits and magnetism, using lab equipment and material to compare the results of experiments with theoretical models.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LIS2022 COMPUTER ARCHITECTURE**

Design the main components of a processor using analysis techniques, modern computer architectures and application of multiprocessor data flow simulation methods to develop solutions to real computer systems problems.

**LIS2082 DATABASES**

Develop database applications, representing their information with the related data model without inconsistencies or anomalies, to organize storage and for its quick and structured access.

**LRT2012 ELECTRONIC CIRCUITS**

Understand electrical circuits' decomposition techniques, by analyzing and designing resistive, inductive and capacitive circuits to use them in more complex electrical circuits.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LRT2032 ELECTRONIC CIRCUITS LAB**

Analyze dependent source circuits, operational amplifiers and inductive and capacitive elements using simulation tools to analyze and implement their behavior over time.

**LIS2012 DISCRETE MATH**

Identify the appropriate problem solving design techniques through asymptotic analysis of an algorithm in order to develop efficient solutions.

**MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

**LIS2062 OPERATING SYSTEMS**

Identify the structure and organization of operating systems by analyzing their design and implementation in order to effectively use the different operating systems.

**LFA3082 NUMERICAL ANALYSIS**

Develop programming language code, using algebra and calculus to analyze nonlinear, algebraic and differential equations.

**LIS3032 HUMAN-COMPUTER INTERACTION**

Apply the fundamental concepts of Human-Computer Interaction (HCI), through the analysis of users and their environment, as well as the building of prototypes to design interactive systems that users accept and incorporate into their activities.

**LIS3052 PROFESSIONAL PRACTICES 1**

Use, through experience, the knowledge acquired in computer systems - such as databases, operating systems, artificial intelligence, among others - to apply them to problems, by analyzing, synthesizing and evaluating the decisions made in a company or research project.

**LRT3032 EMBEDDED SYSTEMS**

Apply hardware description languages to design a processor, by integrating the fundamentals of logical design to develop systems embedded in reconfigurable devices.

**LIS3042 COMPUTER THEORY**

Design programs based on the analysis of the level of a problem's complexity by modeling deterministic and non-deterministic automata as well as in the computer grammar to develop solutions to automata problems to apply the corresponding lexical analyzer and parser.

**LIS3012 ADVANCED DATABASES**

Compare information handling technologies using relational-extended, object-oriented, and semi-structured models to develop a critical view of existing technology when building modern databases.

**LIS3022 GRAPHING AND VIDEOGAMES**

Analyze the theory and practice of how to create three-dimensional on computers for image motion generation in order to apply it to computer and video game animations.

**LIS3062 SOFTWARE ENGINEERING**

Apply the most advanced software development method-

ologies to meet users's needs, by analyzing and designing software components, implementing and testing the prototype to determine if it complies with quality standards in real situations.

#### **LIS3082 ARTIFICIAL INTELLIGENCE**

Design applications using artificial intelligence search techniques, deductive databases and genetic algorithms to build intelligent software based on automatic reasoning and geared towards optimization.

#### **LIS3132 NETWORKS AND TELECOMMUNICATIONS LAB**

Apply concepts of computer networks such as the design and monitoring of networks, using software tools and network equipment, to analyze the protocols involved in the TCP/IP model and use traffic analysis in a communications network.

#### **LIS3092 VIDEOGAME LAB**

Identify the different parts of a generic video game by implementing the different components to develop animation systems or video game proposals.

#### **LIS3122 NETWORKS AND TELECOMMUNICATIONS**

Analyze modern telecommunication networks and systems by applying mathematical fundamentals and design and interconnectivity technology techniques, protocol analysis and simulation tools to develop solutions to computer networks and communication protocols problems, including mobile environments, optical communication, satellite networks, cellular telephony, open system interconnection model network management, and transmission control protocol with Internet protocol.

#### **LIS4022 PROFESSIONAL PRACTICES 2**

Develop a computer system project that includes data subjects, artificial intelligence, mobile applications, communications networks, and computer security, among others, using the experience-based learning approach by identifying problems in the companies or research centers to create innovative products or to improve systems or procedures in the engineering.

#### **LIS4062 INFORMATION SECURITY**

Apply the principles and concepts of cryptography and computer security by analyzing encryption algorithms and intrusion detection to develop solutions that help protect information in a communications network.

#### **LIS4052 DISTRIBUTED SYSTEMS**

Identify distributed environments problems by analyzing existing formal and technical solutions to design and build dis-

tributed systems and apply existing technologies to the development of distributed application prototypes.

#### **LIS4032 SELECT TOPICS 1**

Examine automated learning topics, describing existing algorithms, models and tools to identify possible applications in intelligent systems, natural language processing, semantic analysis of social networks and pattern recognition.

#### **LIS4042 ARTIFICIAL VISION**

Apply multimedia, audio, image and video signal processing techniques, by analyzing mathematical methods, hardware, software and various algorithms to develop them in artificial vision applications.

#### **LIS4102 CLOUD COMPUTING AND BIG DATA**

Identify the concepts of design and implementation of "big data" systems by analyzing existing successful systems to develop solutions to specific problems.

#### **LIS4012 MOBILE APP DEVELOPMENT**

Develop innovative mobile applications using software engineering criteria, database techniques and multimedia management to create quality software and build interactive applications.

#### **LIS4072 SYSTEMS DESIGN AND MANAGEMENT**

Apply appropriate methods to manage, design, create, implement or purchase a software project in an efficient way to create information technology solutions by developing budgets in a multidisciplinary context to develop a comprehensive software project.

#### **LIS4112 CLOUD COMPUTING AND BIG DATA LAB**

Create a cloud computing or big data system by analyzing existing systems develop the ability to propose a system that solves a given problem.

#### **LIS4082 SELECT TOPICS 2**

Analyze topics of usability, accessibility and user experience (UX) with interactive systems, by examining developing techniques and methodologies, as well as building prototype and the designing quantitative and qualitative studies with real users to create innovative computer systems.

#### **LIS4092 SELECT TOPICS 3**

Examining Industry 4.0 topics by describing the technological bases of the Internet of Things (IoT) and the analysis of big data to develop solutions to problems that arise when working or during research.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

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Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

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Describe the origin of disease through causal factors to evaluate information sources on human health.

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# INDUSTRIAL ENGINEERING

## CON1012 ACCOUNTING

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## UI1022 GENERAL CHEMISTRY LAB

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1032 LINEAR ALGEBRA

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

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Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## LIM1012 COMPUTERIZED DRAWING LAB

Use CAD programs to create model and/or assembly blueprints, taking into account the standards of technical drawing, to apply them as a means of communication in activities related to manufacturing and mechanical design.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

**LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LII2012 UNCERTAINTY ANALYSIS I**

Analyze industrial engineering uncertainties by studying random variables and developing mathematical models to identify their behavior, to estimate and/or predict their frequency, and to quickly and accurately evaluate the results.

**LII2022 COMPUTER APPLICATIONS IN THE INDUSTRY**

Analyze industrial engineering and logistics problems that influence decision-making through mathematical modeling, flowcharts and specialized software to provide solutions to complex iterative optimization problems.

**MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

**CON2012 COST ACCOUNTING I**

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LII2032 UNCERTAINTY ANALYSIS II**

Build mathematical models that represent the behavior of random phenomena, by applying probability theory concepts and theorems and basic statistics, to describe possible outcomes and assign probabilities to different engineering events.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LII2052 ERGONOMICS**

Develop tasks, tools and work environment specifications, by linking job requirements with performance and safety, in order to provide solutions that improve efficiency, capacity, and well being of workers.

**LII2062 ECONOMIC ENGINEERING**

Analyze the economic sensitivity of engineering proposals by proposing alternative economic scenarios, and applying financial valuation criteria to define their feasibility.

**LII2042 OPTIMIZATION THEORY AND TECHNIQUES**

Analyze practical problems by applying mathematical programming models and methods to develop optimal solutions to make decisions.

**LII3032 MANUFACTURING PROCESSES LAB**

Develop raw material modification processes through manufacturing - with and without machining and bonding processes, and with various materials and lab equipment - to understand all the parameters to be controlled in the different processes.

**LII3042 ANALYTICAL METHODS IN SYSTEMS I**

Interpret population characteristics by analyzing information from a sample and applying parametric and non-parametric methods (free of distribution) to explain, estimate, and test assumptions and come up with decisions.

**LII3012 PROFESSIONAL PRACTICES I**

Develop multidisciplinary teamwork skills by carrying out specific industrial engineering activities in a product and/or service company, recommending solutions to real problems.

**LII3022 MANUFACTURING PROCESSES**

Understand the machining, casting, plastic deformation, molding of polymers and welding processes by analyzing them and their stages, advantages and disadvantages, to use and implement them in manufacturing systems.

**LII3052 INTEGER AND COMBINATORIAL PROGRAMMING**

Analyze combinatorial optimization problems through mathematical modeling and combinatorial and integer programming techniques to develop optimal solutions to a company's production, logistics and management areas.

**LII3062 LEAN SYSTEMS**

Develop work system improvement proposals using lean manufacturing concepts and techniques, in order to provide solutions that reduce waste and cycle times in manufacturing, services and administrative processes.

### **LI13122 STATISTICAL QUALITY CONTROL**

Design control tools, for both production processes and services, by using inferential statistics and probability, to identify which production processes and products and/or services meet the customer's quality expectations.

### **LI13072 PLANT DISTRIBUTION**

Design plant distribution alternatives using current standards and algorithms to develop solutions that increase installation efficiency of companies.

### **LI13092 METHOD ENGINEERING**

Analyze mechanisms that improve productive processes by performing time and motion studies to develop solutions that reduce working times and improve the use of resources in manufacturing and services.

### **LI13112 ANALYTICAL METHODS IN SYSTEMS LAB**

Develop solutions to probability and statistics engineering problems using computer tools and specialized software to carry out the mathematical calculations to interpret the results.

### **LI13102 ANALYTICAL METHODS IN SYSTEMS II**

Build regression models, applying statistics and probability, to explain the behavior of a dependent variable using independent ones thus using them as prediction and/or prognosis models. Design probabilistic and non-probabilistic samples, applying probability and statistics, to produce information with statistical representation to validate assumptions about the target population.

### **LCS3052 INVENTORY MODELS AND QUEUING**

Design inventory models, applying deterministic mathematical models, as well as those that include demand uncertainty and/or delivery times to develop solutions that contribute to reducing the cost of inventory. Design waiting lines through the application of queuing theory, to develop solutions that increase efficiency when providing services.

### **LI13082 SYSTEMS SECURITY AND ENGINEERING OF RESILIENCE**

Perform risk analysis to come up with proposals to improve systems' security and other socio-technical procedures, and so contribute to improving system capacity and avoiding unacceptable loss in dynamic and unpredictable conditions.

### **LI14042 DESIGN OF EXPERIMENTS**

Design experiments through mathematical modeling by combining one or more process variables under different operating conditions to select the best one; develop the ability to make a results-based decision.

### **LI14032 SIMULATION OF INTEGRATED SYSTEMS LAB**

Develop discrete models that predict the results of personnel, materials, energy, machines and information systems using simulation software to provide solutions that anticipate decisions about installation and modification of such systems and guarantee their performance.

### **LI14052 PRODUCTION PLANNING AND CONTROL**

Plan a goods or services production system by creating an aggregate plan, which includes a master production plan, a plan to supply materials, and control actions to develop solutions that increase the efficiency and effectiveness of processes.

### **LI14012 PROFESSIONAL PRACTICES 2**

Develop a practical project applying your industrial engineering knowledge to make analyses and decisions in a work environment.

### **LI14022 SIMULATION OF INTEGRATED SYSTEMS**

Build a model that represents all elements of a real system, using simulation languages and probability and statistics, in order to develop proposals and/or alternative scenarios that improve the original system.

### **LI14062 SELECT TOPICS 1**

Analyze current human systems integration topics applying advanced methods to develop solutions that increase systems' performance and control by humans.

### **LI14082 DESIGN IN INDUSTRIAL ENGINEERING**

Design alternatives to real manufacturing or service processes and systems by applying industrial engineering and project evaluation techniques and tools to develop improvement proposals that increase process efficiency and efficacy indicators.

### **LI14072 LOGISTICS IN PRODUCTION SYSTEMS**

Build logistics systems using mathematical models and network flow algorithms, to develop optimal solutions to distribution problems and general supply chain management.

### **LI14112 COMPUTER INTEGRATED MANUFACTURING**

Apply advanced techniques in product development processes, using Computer Assisted Design (CAD)/Computer Aided Engineering (CAE)/Computer Assisted Manufacturing (CAM) systems to develop solutions that increase the competitiveness of the industry.

### **LI14092 SELECT TOPICS 2**

Examine operations research topics, analyzing the most current developments to come up with proposals that contribute to a company's competitive advantage.

**LII4102 SELECT TOPICS 3**

Analyze continuous quality improvement topics, examining statistical principles and innovative strategies to design solutions to quality problems.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health

through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# MECHANICAL ENGINEERING

## QUI1022 GENERAL CHEMISTRY LAB

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1032 LINEAR ALGEBRA

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writ-

ing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## LIM1012 COMPUTERIZED DRAWING LAB

Use CAD programs to create model and/or assembly blueprints, taking into account the standards of technical drawing, to apply them as a means of communication in activities related to manufacturing and mechanical design.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT2012 CALCULUS II

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## LIM2012 MATERIAL SCIENCE AND ENGINEERING I

Explain the effect of engineering materials' microscopic properties with their macroscopic physical properties, by analyzing the different phenomena that support them, to understand the use of a specific material in a certain application.

**LIM2022 EQUILIBRIUM OF RIGID BODIES**

Analyze the loads and constraints that maintain equilibrium in particles and rigid bodies by applying static and two-dimensional equilibrium equations to develop solutions to engineering problems that involve structural of reinforcements, racks and machines components.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**LIM2032 METROLOGY LAB**

Report measurements obtained experimentally, using dimension, shape and surface measurement instruments and techniques, of pieces manufactured with different techniques; interpret a blueprint to estimate measurement uncertainties to calculate adjustments in assemblies and establish the amount of data to be used.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**LIM2052 MATERIAL SCIENCE AND ENGINEERING II**

Identify the necessary material and/or the treatment to modify its physical properties, by studying the metallic materials and the properties obtained from the different thermal and/or thermochemical treatments, to understand the materials used by engineering design teams.

**LIM2062 KINEMATICS AND KINETICS OF RIGID BODIES**

Analyze the movement originated by the imbalance of force and momentum, applying Newton's laws and alternative methods, like work and energy, to develop solutions to engineering problems involving moving physical systems.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LIM2072 KINEMATICS AND KINETICS OF RIGID BODIES LAB**

Develop alternative solutions to problems related to body's velocity, acceleration and reaction, applying kinematics and kinetics of rigid bodies theory and principles, to use them to design mechanical elements and systems.

**LIM2042 MATERIAL ENGINEERING LAB**

Examine the physical properties of materials by using laboratory equipment, standards and techniques to identify the relationship between the structure, process and properties of engineering materials.

**LIM3022 MANUFACTURING LAB I**

Modify the dimensions and/or properties of materials, using processes without machining; identify, with lab practices, the variables involved as well as the safety required when operating the equipment.

**LIM3062 MECHANISMS LAB**

Analyze the movement of a mechanism by correctly selecting kinematic pairs and building prototypes, and using specialized software to simulate the mechanism, in order to examine its stability and reliability.

**LIM3012 MANUFACTURING I**

Identify the requirements of the casting, plastic deformation and welding processes in manufacturing processes by analyzing the scientific bases of each, and the advantages and disadvantages of their use to select and implement them according to the product's specifications.

**LIM3042 SOLID MECHANICS I**

Analyze the stresses and elastic deformations in homogeneous continuous solid isotropic bodies of regular geometry subjected to static loads, by studying the stresses generated by axial, shearing, bending and torsion loads, to identify their behavior within a system.

**LIM3052 MECHANISMS**

Analyze the movement of a mechanism by correctly selecting kinematic pairs and building prototypes, and using specialized software to simulate the mechanism, in order to examine its stability and reliability

**LIM3082 ANALYTICAL METHODS IN MECHANICAL ENGINEERING I**

Analyze vector fields and differential equations in partial derivatives by applying natural laws and using mathematical methods to develop solutions to mechanical engineering problems.

**LIM3032 PROFESSIONAL PRACTICES I**

Develop work skills in multidisciplinary teams by performing specific Mechanical Engineering jobs in an automotive or manufacturing company, in order to identify adaptation situations in a working environment.

### **LIM3072 THERMODYNAMICS**

Analyze properties and thermodynamic processes applying the principles of energy conservation and entropy to examine the energy conversion processes in mechanical engineering.

### **LIM3102 MANUFACTURING LAB 2**

Modify the geometry of machinable metal materials by using machining, to identify, in a practical way, the variables involved in using these processes, as well as safety aspects during their operation.

### **LIM3162 FLUID MECHANICS LAB**

Identify the principles and properties that govern fluid mechanics, applying them laboratory experiments to analyze their implications in systems that involve fluid transport.

### **LIM3122 SOLID MECHANICS LAB II**

Identify the behavior of deformable solids subjected to different load and support conditions, applying theoretical concepts to develop solutions to element design mechanical systems and problems.

### **LIM3092 MANUFACTURING 2**

Analyze the most commonly used machining processes in the industry, through the application of simplified mechanical models that relate the geometry and kinematics with the shear forces and thermal effects in the tool-part-chip system, to understand the optimization process in terms of productivity, cost, quality and availability of machines and tools.

### **LIM3152 FLUID MECHANICS**

Analyze fluid systems by applying static fluid principles, moment conservation and differential equations to evaluate pressure and velocity distributions as well as the resulting force.

### **LIM3112 SOLID MECHANICS II**

Interpret a structure's stresses and deformations by applying the Maxwell-Mohr method to define the acceptable loads, as well as the resulting stress in a general load with the von Mises method.

### **LIM3172 ANALYTICAL METHODS IN MECHANICAL ENGINEERING II**

Apply computer tools to develop solutions to sophisticated problems that during your professional life, generating codes that solve partial differential equations applied to mechanical engineering.

### **LIM3142 APPLIED THERMODYNAMICS**

Analyze various thermodynamics applications in mechanical engineering problems by examining the principles of energy conservation and entropy to evaluate their operation and efficiency.

### **LIM3132 MECHANICAL VIBRATIONS**

Analyze the movement of mechanical-electrical systems in relation to forces, applying different theoretical and practical techniques, to evaluate the amplitudes of vibrations and the natural frequencies.

### **LIM4032 DESIGN OF MACHINE ELEMENTS**

Analyze typical elements that make light machinery through traditional procedures based on solid theory, material resistance and use of finite element, to establish at which point commercially available elements cover the needs of a system or and when they need to be designed.

### **LIM4062 THERMAL SCIENCE LAB**

Understand heat transfer, power and cooling cycles through the use of lab equipment to analyze and interpret data to select materials, choose the mechanical design or production of a part, mechanism or machine.

### **LIM4022 ADVANCED MANUFACTURING LAB**

Design a manufacturing process according to the specifications of a blueprint (roughness, tolerances) using Computer Assisted Design/Computer Assisted Manufacturing (CAD/CAM) computer numerical control machines and micro plastic injection machines that can be used to manufacture precision parts.

### **LIM4012 ADVANCED MANUFACTURING**

Apply innovative manufacturing support technologies by using computer-aided design, engineering and manufacturing packages (CAD/CAE/CAM) to develop solutions to increase quality and reduce the cost of manufactured products.

### **LIM4042 FINITE ELEMENT METHODS**

Apply the finite element method to structural problems through the appropriate selection of the size and type of the element, boundary conditions, loads, constitutive equations and solution methods, in order to examine the behavior of mechanical components with geometry and complicated loads to obtain an analytical solution.

### **LIM4072 PROFESSIONAL PRACTICES 2**

Develop a practical project, analyzing of Mechanical Engineering theories and concepts to apply engineering analysis and decision-making in a work environment.

### **LIM4052 HEAT TRANSFER**

Analyze heat transfer using the principles of energy conservation and differential equations to evaluate heat flow and temperature distribution.

### **LIM4102 DESIGN OF MECHANICAL SYSTEMS**

Design a mechanical system, using theoretical and practical

innovations in materials science and engineering, and advanced manufacturing and energy processes, to develop real and feasible solutions in terms of manufacturability and cost.

#### **LIM4132 ELECTRO-OLEO-PNEUMATIC SYSTEMS LAB**

Apply control and regulation logic through lab experiments of the principles of transmissibility, compressibility and stability, to develop control a system's execution movements.

#### **LIM4122 ELECTRO-OLEO-PNEUMATIC SYSTEMS**

Analyze a system's movements through the logical application of control and regulation of oil or air flow, to establish its transmissibility, compressibility and stability of the same.

#### **LIM4082 SELECT TOPICS 1**

Analyze current mechanical design topics, applying design and/or analysis methodologies, as well as fundamentals of materials, manufacturing processes and mechanical systems to design automotive components.

#### **LIM4092 SELECT TOPICS 2**

Analyze current energy topics, applying the principles of thermodynamics, fluid mechanics and heat transfer to develop solutions to contemporary conversion and use of energy problems.

#### **LIM4112 SELECT TOPICS 3**

Examining current manufacturing and materials topics studying the theories, advanced materials, cutting-edge treatments and manufacturing processes currently applied to develop proposals in the various applications of mechanical engineering.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phe-

nomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

#### **COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

### **GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

#### **CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

#### **CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

### **GENERAL STUDIES ELECTIVE IN HUMANITIES \***

#### **HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

#### **HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# MECHATRONICS ENGINEERING

## LIS1012 ALGORITHMS AND PROGRAMMING

Apply algorithmic thinking through the use of control structures to denote sequences, conditions, cycles and adequate data structures to develop programming language solutions.

## QUI1022 GENERAL CHEMISTRY LAB

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1032 LINEAR ALGEBRA

Solve equations by applying the theoretical processes of lin-

ear algebra and using technological resources to model applied sciences phenomena.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## LIM1012 COMPUTERIZED DRAWING LAB

Use CAD programs to create model and/or assembly blueprints, taking into account the standards of technical drawing, to apply them as a means of communication in activities related to manufacturing and mechanical design.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT2012 CALCULUS II

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

**LRT2012 ELECTRONIC CIRCUITS**

Understand electrical circuits' decomposition techniques, by analyzing and designing resistive, inductive and capacitive circuits to use them in more complex electrical circuits.

**LRT2022 DIGITAL DESIGN**

Know how to design digital systems by using hardware description language (HDL) to analyze the operation of modern digital system.

**ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

**FIS2012 GENERAL PHYSICS II**

Apply the laws that govern electric and magnetic phenomena using algebra and calculus to develop solutions to electromagnetic problems.

**LRT2032 ELECTRONIC CIRCUITS LAB**

Analyze dependent source circuits, operational amplifiers and inductive and capacitive elements using simulation tools to analyze and implement their behavior over time.

**FIS2022 GENERAL PHYSICS LAB II**

Apply the fundamentals of electrostatics, electric properties of materials, electronic circuits and magnetism, using lab equipment and material to compare the results of experiments with theoretical models.

**LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

**MAT2032 CALCULUS III**

Apply vector calculus methods as a tool to develop two-dimensional and three-dimensional models of various technological processes studying curves and surfaces in space, as well as the concepts of differentiability and integrability in scalar and vector fields.

**MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

**LRT2042 INTEGRATED ELECTRONICS**

Design electronic circuits, both analog and digital, using de-

sign methodologies and the equations that govern their operation to connect them to the construction of electronic circuits that meet the requirements imposed on the embedded systems that are part of current technological solutions.

**LIM2022 EQUILIBRIUM OF RIGID BODIES**

Analyze the loads and constraints that maintain equilibrium in particles and rigid bodies by applying static and two-dimensional equilibrium equations to develop solutions to engineering problems that involve structural of reinforcements, racks and machines components.

**LRT2052 INTEGRATED ELECTRONICS LAB**

Analyze the behavior of semiconductor elements such as diodes and transistors, as well as the applications of linear devices and low integration scale integrated circuits by examining the theoretical foundations of integrated electronics to apply them to everyday electronic solutions.

**MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

**LIS1022 OBJECT ORIENTED PROGRAMMING**

Describe object-oriented paradigms using UML (Unified Modeling Language) notation and Java programming language to implement the requirements of an application.

**LMT2012 MATERIAL PROPERTIES**

Classify solid materials by analyzing their most relevant properties to select the appropriate one for different engineering applications.

**LIM2062 KINEMATICS AND KINETICS OF RIGID BODIES**

Analyze the movement originated by the imbalance of force and momentum, applying Newton's laws and alternative methods, like work and energy, to develop solutions to engineering problems involving moving physical systems.

**LIM2072 KINEMATICS AND KINETICS OF RIGID BODIES LAB**

Develop alternative solutions to problems related to body's velocity, acceleration and reaction, applying kinematics and kinetics of rigid bodies theory and principles, to use them to design mechanical elements and systems.

**LMT3032 SIGNALS AND INSTRUMENTATION LAB**

Build circuits using operational amplifiers as functional blocks by using the main types of sensors and transducers to

use them and implement them in data acquisition systems, and analyze their more complex functions.

#### **LMT3012 PROFESSIONAL PRACTICES 1**

Apply the knowledge acquired in electronics, mechanics, programming, automotive networks, renewable energies and automation, to develop solutions to problems by analyzing, summarizing and evaluating decisions to achieve a set of realistic specifications in companies or in research projects.

#### **LMT3022 SIGNALS AND INSTRUMENTATION**

Develop detection systems, electronic sensors, and signal conditioning, recording and deploying them using electronic circuit tools that meet design specifications to analyze electrical signals with regards to time and frequency.

#### **LIS3072 TECHNOLOGICAL INNOVATION**

Illustrate technological innovation and patent registration processes using diagnosis and creation strategies and processes to develop proposals that foster creativity, intellectual property in innovation and learning in an organization.

#### **LMT3042 MACHINES AND MECHANISMS LAB**

Identify the elements that make up a mechanism and verify the function of each by analyzing the main types of kinematic pairs, functions of existing cams, types of gears and their degree of mobility them in mechatronics and robotics.

#### **LMT3052 ELECTRICAL MACHINES**

Understand the basic principles of direct current machines' operation and control, transformers and AC machines, by analyzing their electromagnetic properties and their different industrial applications, in order to define the preponderant role of electric machines in a full power electrical system.

#### **LIM3042 SOLID MECHANICS I**

Analyze the stresses and elastic deformations in homogeneous continuous solid isotropic bodies of regular geometry subjected to static loads, by studying the stresses generated by axial, shearing, bending and torsion loads, to identify their behavior within a system.

#### **LRT3082 CONTROL SYSTEMS**

Design control systems using time and frequency techniques, mathematical models and physical laws of equilibrium to examine the constraints and specifications of the system.

#### **LMT3062 THERMOFLUIDS**

Identify the fundamental thermodynamics and fluid mechanics principles and laws using the fundamentals of fluid

statics and the fundamental equations of fluid mechanics to analyze thermal and fluid systems.

#### **LMT4032 INDUSTRIAL AUTOMATION**

Develop industrial automation systems using programmable logic controllers, pneumatic and electro-pneumatic systems as basic elements for industrial process automation; monitor the system to apply it in the industry.

#### **LRT4062 POWER ELECTRONICS**

Identify the different power converters used in to convert electrical energy, describing the properties of direct current and alternating current, as well as of electronic devices in energy conversion, to understand its applications.

#### **LMT4012 PROFESSIONAL PRACTICES 2**

Develop a mechatronics project involving mechatronics design, automation, renewable energies, automotive networks, mechanics and programming using the experience-based learning approach for problems in the production sector or at research centers to create innovative products or to improve systems or procedures in the engineering area.

#### **LMT4022 MANUFACTURING SYSTEMS**

Analyze current manufacturing processes in the metal-mechanical and automotive industry using computer-assisted design and manufacturing to apply them in a production line.

#### **LMT4042 SELECT TOPICS 1**

Analyze unmanned aircraft systems (UAS) topics by studying the latest trends in aircraft control and guidance, in order to develop solutions to problems involving autonomous navigation.

#### **LMT4062 DESIGN OF MECHATRONIC SYSTEMS**

Develop a mechatronic control system for terrestrial or aerial automatic systems directed, integrating the mechanical and electronic design by programming an embedded systems control, to apply an economic and temporary planning of specific objectives.

#### **LMT4052 AUTOMOTIVE NETWORKS**

Analyze the operation of a data network, the ISO/OSI model, access techniques, network topologies and IP addressing using automotive network protocols and communication algorithms to develop automotive distributed systems.

#### **LMT4092 INDUSTRIAL ROBOTICS**

Analyze the technology of the current industrial robots, using mathematical and simulation tools to identify their operation and programming principles.

**LMT4072 SELECT TOPICS 2**

Analyze multi-physical systems through object-oriented programming topics to emulate cyber-physical components or systems that comply with the laws of nature.

**LMT4082 SELECT TOPICS 3**

Examine renewable, non-renewable and mechatronics-related smart grid topics, describing the creation of electrical energy using renewable and non-renewable sources, to develop solutions to current problems.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

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Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

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Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# CHEMICAL ENGINEERING

## LQI1012 MATERIAL BALANCE

Develop a clear and systematic methodology using an engineering approach to solve material balances with and without chemical reaction problems.

## QUI1022 GENERAL CHEMISTRY LAB

Develop analytical and practical skills by observing and developing experiments to measure properties and transformations of matter and their velocity, to identify elementary techniques and thus to become familiar with the handling of glass material, instruments and equipment in chemistry.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## QUI1012 GENERAL CHEMISTRY

Identify the properties and transformations of matter and at what speed these changes occur, by describing the atomic structure and reactivity of substances, to describe the reasons why chemistry is useful in your area and in everyday life. Describe inorganic substances through the correct application of nomenclature rules to identify chemical formulas by their names.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## MAT1032 LINEAR ALGEBRA

Solve equations by applying the theoretical processes of lin-

ear algebra and using technological resources to model applied sciences phenomena.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## FIS1012 GENERAL PHYSICS I

Apply the laws of newton mechanics using algebra and calculus techniques to solve mechanics problems.

## FIS1022 GENERAL PHYSICS LAB I

Apply the fundamentals of kinetics and Newton mechanics, using lab equipment and material to compare the results of experiments with theoretical models.

## QUI1042 ORGANIC CHEMISTRY LAB I

Know the equipment used in organic chemistry and perform synthesis, separation, purification and identification of substances, using personal safety regulations, good lab practices and hazardous waste handling to measure properties of matter and make basic organic chemical reactions.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## QUI1032 ORGANIC CHEMISTRY I

Describe the functional groups, properties and simple transformations of organic compounds, using different organic structures and chemical equations to identify the rela-

relationship between the structures of organic compounds and their properties. Identify organic compounds by applying the IUPAC nomenclature rules to distinguish different organic compounds.

#### **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

#### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **QUI2102 ANALYTICAL CHEMISTRY LAB**

Develop analytical and practical skills by observing and developing experiments to identify and quantify a substance's components through different analysis methods, to manipulate the material and lab equipment used in analytical chemistry.

#### **QUI2052 CHEMICAL THERMODYNAMICS LAB**

Analyze heat transfer process data by creating and correctly interpreting graphs to obtain information on thermodynamic parameters.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **QUI2092 ANALYTICAL CHEMISTRY**

Identify a substance's components through different analysis methods, for the separation, identification and determination of the ions and molecules that form a material.

#### **QUI2042 CHEMICAL THERMODYNAMICS**

Describe the various processes of energy exchange in physical and chemical changes, through the proper use of the principles of thermodynamics, to interpret physicochemical phenomena and their implications in associated processes.

#### **MAT2052 ORDINARY DIFFERENTIAL EQUATIONS**

Apply differential equation solution techniques using the existing classical methodologies of ordinary differential equations to apply them to practical problems.

#### **LQI2012 THERMAL MACHINES**

Explain the different types of machines and turbines, using thermodynamics as a basic technique, to apply energy anal-

ysis, efficient calculation of thermal machines and analysis of basic and complex thermodynamic cycles.

#### **MAT2082 PROBABILITY AND STATISTICS**

Apply various probability and statistical techniques through different probability models and descriptive and inferential statistical methodologies to estimate parameters and contribute to decision-making.

#### **LQI3042 FREE ENERGY BALANCES**

Identify the thermodynamic bases of multicomponent mixtures and the conditions of mass transfer to the thermodynamic equilibrium, analyzing the equilibrium models in multicomponent and multiphase systems to relate the properties and equilibrium constants of the components in heterogenic and two phase system.

#### **LQI3062 PHASE BALANCE LAB**

Define equilibrium in pure compounds and multicomponent systems, through the use of materials and lab equipment to compare the solubility diagrams of experimental and simulated data.

#### **LQI3052 TRANSPORTATION PROCESSES LAB I**

Identify heat transfer mechanisms through experiments to define the physical properties of fluids.

#### **LQI3022 PROFESSIONAL PRACTICES 1**

Analyze chemical industry problems or scientific challenges related to science, technology or chemical engineering, by applying technical knowledge to solve problems and to develop chemical engineering skills.

#### **LQI3032 PROPERTY PREDICTION**

Analyze ideal and real pressure-volume-temperature (PVT) properties and thermodynamics in one and two fluid phases of pure compounds equations, examining methods and experimental data to predict the physical and chemical properties of substances.

#### **LQI3012 TRANSPORTATION PROCESSES I**

Compare fluid flow and heat transfer concepts, using theoretical and mathematical analysis of transfer of momentum and heat principles, to calculate the flow in heat transfer pipes and equipment.

#### **LIN3022 SAFETY IN CHEMICAL PROCESSES**

Explain the conceptual bases and applications of occupational safety, process safety and occupational hygiene that apply to companies through the use of theories, models and regulations to understand safety

### **LQI3112 KINETICS AND CHEMICAL REACTORS**

Evaluate the effect of different reactor designs and operation variables by applying general laws and principles to identify the type of reactor required for a specific process.

### **LQI3122 PROCESS ENGINEERING I**

Identify a process simulator's input and output interfaces by simultaneously solving the material, energy and entropy balances of the system, as well as the thermodynamic properties of the components involved and the design parameters of each equipment to evaluate the chemical process' flowchart.

### **LQI3142 KINETICS AND CHEMICAL REACTORS LAB**

Understand the operation of chemical reactors through lab practices to explain the kinetic parameters of a chemical reaction.

### **LQI3132 UNIT OPERATIONS OF FLUID AND HEAT FLOWS LAB**

Analyze the operation of fluid flow and heat transfer equipment, through of laboratory experiments.

### **LQI3102 UNIT OPERATIONS OF HEAT FLOWS**

Analyze the behavior of heat flow in equipment, using heat transfer laws and theories to design equipment for industrial applications in the chemical and environmental industry.

### **LQI3082 UNIT OPERATIONS OF FLUID FLOWS**

Analyze the behavior of fluids using fluid properties and laws associated with equipment design, applying them to solving fluid displacement problems and to select suitable equipment.

### **LQI3072 TRANSPORTATION PROCESSES II**

Define mass transfer, through theoretical and mathematical analysis of mass transfer principles, applying them to industry transformation and natural processes.

### **LQI3092 SELECT TOPICS 1**

Analyze quality management of international systems' topics, analyzing theories and methods to identify processes related to the definition, measurement and quality analysis of products and processes in the chemical industry.

### **LQI4042 CATALYSIS AND HETEROGENEOUS REACTORS**

Design heterogeneous reactors with recirculation and multiple industrial process stages, combining the ideal models in one phase, with the presence of catalysts in the reactions to describe the operation.

### **LQI4052 PROCESS ENGINEERING II**

Evaluate alternative process flowchart designs by applying

different approaches to identify the principles and techniques of chemical process simulation.

### **LQI4062 UNIT OPERATIONS OF MASS TRANSFER LAB**

Evaluate mass transfer, distillation and extraction processes through lab experiments to acquire skills in the operation of the different types of distillation and extraction towers that exist in the chemical industry.

### **LQI4012 UNIT OPERATIONS OF MASS TRANSFER**

Evaluate unit operations that involve of equilibrium stages models, such as distillation, absorption, desorption and extraction, by applying the principles of phase equilibrium and the fundamental laws of mass and energy conservation, to design a suitable process suitable to separate and purify products.

### **LQI4022 PROFESSIONAL PRACTICES 2**

Analyze problems related to science, technology or chemical engineering, applying your chemical engineering expertise.

### **LQI4032 SELECT TOPICS 2**

Examine industrial product and process innovation and redesign issues identifying of design, innovation and optimization problems of the chemical industry, analyzing the applicable theory.

### **LQI4112 DYNAMICS AND PROCESS CONTROL**

Understand laws and general principles of dynamic behavior and control of a chemical plant; understand the laws that describe the dynamics, control strategies and dynamic stability of chemical processes to develop adequate control strategies to meet the safety requirements, production specifications, environmental protection regulations, and operating and economic limits.

### **LQI4082 DESIGN OF CHEMICAL PLANTS**

Design chemical industrial installation processes by performing equipment calculations to identify environmental, safety and logistics restrictions.

### **LQI4072 PROCESS INSTRUMENTATION**

Distinguish between the main functions of measuring instruments, using basic knowledge of physical signal measurement to categorize industrial process instrumentation.

### **LQI4122 INSTRUMENTATION LAB**

Understand measuring instruments by applying chemical processes to create blueprints and diagrams.

**LQI4132 ADVANCED UNIT OPERATIONS OF MASS TRANSFER LAB**

Evaluate humidification, drying, absorption and other unconventional mass transfer processes by selecting materials and lab equipment to analyze the parameters of conventional and non-conventional processes.

**LQI4102 ADVANCED UNIT OPERATIONS OF MASS TRANSFER**

Evaluate the different unit operations involving mass transfer processes between phases, applying principles and laws of transport mechanisms to consider the separation and purification of products.

**LQI4092 SELECT TOPICS 3**

Understand theoretical foundation, normativity and environmental protection systems by analyzing theoretical-practical concepts to develop proposals that minimize the environmental impact of the chemical industry.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing

socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*



# ACADEMIC PROGRAMS

## SCHOOL OF BUSINESS AND ECONOMICS



# BUSINESS ADMINISTRATION

## **ADM1012 MANAGEMENT FUNDAMENTALS**

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **LAD1012 EFFECTIVE COMMUNICATION**

Identify the importance of an organization's effective communication, analyzing theoretical and methodological application proposals to define possibilities that create action propositions.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial

statements of service and commercial companies to control results.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **CON2012 COST ACCOUNTING I**

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

## **LAD2012 ENTREPRENEURIAL CULTURE**

Identify business opportunities by analyzing the creative process and competitive environment characteristics to develop conditions that lead to entrepreneurship.

## **LDE2012 CORPORATE LAW**

Examine the different systems involved in commercial companies, analyzing Mexican regulations to identify the mechanisms and legal institutions that influence their operation.

## **ECO2012 MACROECONOMIC ENVIRONMENT**

Identify the basic indicators and models of macroeconomics

through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

#### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

#### **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

#### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

#### **CON2022 FINANCIAL ADMINISTRATION**

Interpret corporate financial performance through an accounting-financial analysis to optimize operation planning and control

#### **LAD2032 ORGANIZATIONAL LEARNING AND CHANGE**

Identify, from a systemic perspective, the learning processes of influential organizations by applying organizational learning models to design and implement effective changes.

#### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

#### **LAD2022 CREATION OF BUSINESSES**

Identify the problems related to starting businesses in the current environment, analyzing the market to identify needs and feasibility of solutions.

#### **MAT2072 STATISTICS FOR BUSINESS II**

Apply various statistical techniques through the analysis of different statistical methodologies, regression analysis and categorical data statistics to evaluate parameters that provide information in decision-making in business problems.

#### **ADM2012 INFORMATION TECHNOLOGIES IN BUSINESS**

Describe the strategic importance of information technology in organizations, evaluating its advantages and limitations in solving business problems, to apply them as support

to operations, decision-making and to the development of competitive advantages in organizations.

#### **LAD3012 ALGORITHMS AND DATA ANALYSIS**

Analyze computer algorithms by developing data analysis models and applying them to information systems in businesses.

#### **LAD3032 MANAGING HUMAN TALENT**

Apply the most important concepts and functions of an organization's human talent management by proposing improvements to create competitive advantages for organizations in a global business environment.

#### **LMK3122 MARKET RESEARCH**

Examine the findings of market research by using technological tools, research techniques and data analysis, to develop proposals that provide information market decision-making.

#### **LAD3022 PROFESSIONAL PRACTICES I**

Analyze problems in real scenarios from an academic perspective, through professional practices, to apply knowledge, skills and attitudes acquired during your bachelor degree.

#### **LAD3092 ORGANIZATIONAL DESIGN**

Create organizational design and structural proposals by analyzing the coherence between the needs and internal capabilities required for an organization to perform correctly.

#### **LAD3062 MANAGING INNOVATION**

Apply innovation processes by studying information system's adoption and use cycles to identify opportunities that may be gained by correctly managing innovation in a company.

#### **LAD3072 LEADERSHIP IN ORGANIZATIONS**

Develop managerial skills through new theoretical and application approaches, applying leadership to identify the factors that contribute to developing human talent in companies.

#### **LAD3042 DECISION MODELS**

Identify the types of models that can be used to solve industry and business problems, analyzing their managerial characteristics to choose the best alternative as a result of a rational process, applying quantitative and qualitative techniques.

#### **LAD3052 E-BUSINESS**

Interpret the elements of e-commerce and their applications in businesses, analyzing success cases and components to design a company's electronic business strategy.

#### **LAD3082 SELECT TOPICS 1**

Analyze vanguard topics on entrepreneurship and innovation, reviewing new trends and approaches to evaluate how

companies act proactively and competitively to current economic scenarios.

#### **LAD4032 OPERATIONS MANAGEMENT**

Define operations in terms of supplies, processes, products, information flows, suppliers and customers, using quantitative and qualitative tools to develop competitive strategies that are aligned with the company's mission.

#### **LAD4042 PROJECT MANAGEMENT**

Apply project management techniques and tools by organizing processes and phases, to identify organizational, human and technical aspects.

#### **LAD4022 STRATEGIC MANAGEMENT**

Develop strategic action plans by applying the main conceptual, methodological and technological instruments to identify the elements of strategic management.

#### **ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

#### **LAD4012 PROFESSIONAL PRACTICES 2**

Evaluate business performance through an academic perspective during your professional practices to propose specific solutions that are objective, creative and critical, thus showing the knowledge, skills and attitudes acquired during your university studies.

#### **LAD4052 SELECT TOPICS 2**

Examine business management topics, reviewing new trends and focuses on management skills to develop competencies that respond proactively and competitively to current economic scenarios.

#### **LAD4062 SUPPLY CHAIN MANAGEMENT**

Identify the variables and contexts involved in applying models and tools by analyzing theoretical concepts in management of the demand of resources and products to establish planning policies according to the company's needs and strategies.

#### **LAD4082 CORPORATE GOVERNANCE**

Design corporate governance systems by evaluating and applying conceptual frameworks of different organisms and control mechanisms to identify the factors that contribute to achieving the best financial and non-financial results

#### **LAD4092 BUSINESS INTELLIGENCE**

Analyze business intelligence strategies, evaluating large data volume analysis models to apply them in designing business technology solutions.

#### **LAD4072 DYNAMIC BUSINESS SIMULATION**

Develop simulation models, applying the language and grammar of system dynamics (causal relationships, feedback cycles, flows and levels), to develop solutions to organizational problems, especially strategic ones.

#### **LAD4102 SELECT TOPICS 3**

Analyze strategic thinking topics, examining new trends and focuses to develop proposals that respond proactively and competitively to current economic scenarios.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# HOTEL AND RESTAURANT ADMINISTRATION

## **ADM1012 MANAGEMENT FUNDAMENTALS**

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by ex-

amining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LHR1012 HOTEL AND RESTAURANT MANAGEMENT**

Explain the most relevant operation and management areas of lodging and food services, analyzing the quality of services to understand the concepts and characteristics offered by hotels and restaurants.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LHR1022 SAFETY IN FOOD HANDLING**

Identify the principles of hygienic food handling in order to explain the contamination and transmission of diseases, by managing them, analyzing their stages, food processing and appropriate sanitary conditions in their reception and storage.

## **LHR2012 FOOD COMPOSITION**

Identify the physical and chemical changes that food undergoes during different elaboration processes, verifying and comparing their characteristics and their positive and/or

unfavorable effects in the final products to understand the structure of food.

### **CON2012 COST ACCOUNTING I**

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

### **LHR2032 TOURISM INDUSTRY AND ITS ENVIRONMENT**

Categorize the components of global tourism, its environment and its interrelationships by analyzing the behavior of tourists to identify commercialization, the role of various national and international organizations, and the social, economic and environmental impacts created.

### **LHR2022 FOOD PREPARATION LAB I**

Understand the different types of table services, applying basic techniques to create dishes and the guidelines of hygienic food handling, standardization of recipes and net cost, to analyze the basic needs inherent to the management of restaurants, kitchens and services.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **CON2022 FINANCIAL ADMINISTRATION**

Interpret corporate financial performance through an accounting-financial analysis to optimize operation planning and control.

### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

### **LFP2012 MANAGEMENT ACCOUNTING**

Identify the main tools of managerial accounting, analyzing different business situations to analyze the company's decision making.

### **LCU2052 NUTRITION IN FOOD PREPARATION**

Create menus by analyzing the recommended nutrients, functions and requirements to develop adequate food programs for each specific case.

### **LHR2042 MANAGEMENT PROCESSES IN LODGING**

Identify the main processes related to room assignments in lodging establishments, understanding the guest cycle as well as the organization and administrative processes required to define the characteristics of an optimal service.

### **ADM2012 INFORMATION TECHNOLOGIES IN BUSINESS**

Describe the strategic importance of information technology in organizations, evaluating its advantages and limitations in solving business problems, to apply them as support to operations, decision-making and to the development of competitive advantages in organizations.

### **LHR3052 ANALYSIS OF TOURISM MARKETS**

Use market research to analyze the characteristics and operations of consumers.

### **LHR3032 FOOD PREPARATION LAB II**

Apply the different cooking techniques and methods to prepare vegetables, meats, poultry, fish and dairy products, applying hygienic management rules to understand the expenses and processes required in the restaurant industry.

### **LHR3042 HOTEL AND RESTAURANT MARKETING**

Apply marketing strategies in the restaurant and hotel industry through strategic planning to identify the needs of consumers.

### **LHR3022 PROFESSIONAL PRACTICES I**

Understand the procedures of a hotel or restaurant's front and back, applying the concepts of this bachelor degree to develop customer service.

### **LHR3012 MEETING TOURISM**

Explain the importance of the variables relevant to events, their accessibility, logistics and attractions by identifying the profiles of those who attend meetings, to create and organize events.

### **LHR3112 OPERATIONS MANAGEMENT IN RESTAURANTS**

Develop controls to plan and design menus according to the

needs of the consumer, identifying the essential concepts in operation and administration in food and beverage service facilities, to understand their optimal operation.

#### **LHR3102 RESORT MANAGEMENT**

Understand the conceptual and operational framework of resorts by integrating the concepts of hotel management and tourism planning, as well as understanding their specific problems, to compare the administration of a traditional hotel with that of a resort.

#### **LHR3062 BEVERAGE SERVICE MANAGEMENT**

Understand the types, classification and elaboration of drinks, as well as the elements and the necessary planning to create a drink service company, through the theoretical-practical application of concepts and specific information.

#### **LHR3072 LEGAL FRAMEWORK FOR HOTELS AND RESTAURANTS**

Analyze the legal regulations of hotels and restaurants in order to operate them.

#### **LHR3092 SELECT TOPICS 1**

Identify current topics of hotel and/or lodging, analyzing service strategies related to hotels.

#### **LHR3122 SELECT TOPICS 2**

Analyze current topics of restaurants and/or food and beverage establishments by examining and observing restaurants, to be able to create a food and beverage establishment, regardless of its type.

#### **LHR3082 SALES FOR HOTELS AND RESTAURANTS**

Understand the basic concepts of communication theory and sales techniques by applying promotional mixes of hotels and restaurants to design a company's communication strategy.

#### **ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

#### **LHR4012 PROFESSIONAL PRACTICES 2**

Apply the theoretical and practical knowledge acquired in your studies by analyzing the processes and problems related to the hotel and restaurant industry to create solutions or alternatives.

#### **LHR4052 INCOME MANAGEMENT IN HOTELS AND RESTAURANTS**

Comprehend the importance of revenue management in ho-

tels, understanding its components and relevant aspects to create the average daily rates.

#### **LHR4022 EVENT MANAGEMENT AND OPERATION**

Apply administrative, operational and logistic aspects to group and/or mass events in hotels, convention centers or creative adaptation of a specific place, by identifying this market segment to development it in the events industry.

#### **LHR4042 HOSPITALITY INNOVATION AND ENTREPRENEURSHIP**

Analyze the frequent business forms in the hospitality industry through the conceptual and operational framework, to analyze the issues and recommend the most appropriate model for the different contexts

#### **LHR4072 GLOBAL TOURISM PERSPECTIVES**

Categorize the trends that will mark the growth of tourist activity by analyzing the main tourist destinations worldwide and the political, economic and social situations that affect the relationship between countries to identify new trends in the sector.

#### **LHR4032 SIMULATION OF HOTEL AND RESTAURANT MANAGEMENT**

Apply hotel and restaurant management theories and models to simulate the problems of occupancy, forecasting, revenue, and over-selling, among others.

#### **LHR4062 SELECT TOPICS 3**

Examine current tourism topics by analyzing the regulations and guidelines of hotels and restaurants to understand the aspects that make up tourism.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phe-

nomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# INTERNATIONAL BUSINESS ADMINISTRATION

## ADM1012 MANAGEMENT FUNDAMENTALS

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESPO012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## CON1012 ACCOUNTING

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## ECO1012 COMPANY AND ECONOMICS

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## LN1012 INTERNATIONAL BUSINESS STUDIES

Identify the concepts and fundamental elements that influence international business management using theoretical models to develop an integral perspective of the challenges and areas of opportunity that the globalization of the economy represents for society, government and business.

## LMK1012 FUNDAMENTALS OF MARKETING

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## CON2012 COST ACCOUNTING I

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

## ECO2012 MACROECONOMIC ENVIRONMENT

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

### **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LNI2012 BUSINESS REGULATION IN MEXICO**

Understand the basic principles and guidelines for conducting business in Mexico through the specific analysis of the framework established by Mexican law on business matters, in order to identify the legal context of business development in the country.

### **CON2022 FINANCIAL ADMINISTRATION**

Interpret corporate financial performance through an accounting-financial analysis to optimize operation planning and control.

### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

### **LFP3042 COST ACCOUNTING II**

Analyze new cost systems by examining their effect on the accumulation and determination of such costs, to determine pricing strategies.

### **MAT2072 STATISTICS FOR BUSINESS II**

Apply various statistical techniques through the analysis of different statistical methodologies, regression analysis and categorical data statistics to evaluate parameters that provide information in decision-making in business problems.

### **LNI2022 BUSINESS IN NORTH AMERICA**

Describe the historical evolution of business in North America by identifying the relationship between Mexico, Canada

and the United States, to understand the challenges and opportunities present in the North American commercial area.

### **ADM2012 INFORMATION TECHNOLOGIES IN BUSINESS**

Describe the strategic importance of information technology in organizations, evaluating its advantages and limitations in solving business problems, to apply them as support to operations, decision-making and to the development of competitive advantages in organizations.

### **LNI3022 INTERCULTURAL MANAGEMENT**

Compare the main cultural differences between country groups, analyzing managerial philosophies and cultural dimensions of organizations to interpret the cultural heterogeneity of the modern world from a polycentric perspective.

### **LNI3012 INTERNATIONAL BUSINESS COMMUNICATION**

Understand the different channels and communication mechanisms that exist in the business world by analyzing international communication theory and different styles of verbal and nonverbal communication to develop interaction skills in the global environments of organizations.

### **LMK3122 MARKET RESEARCH**

Examine the findings of market research by using technological tools, research techniques and data analysis, to develop proposals that provide information market decision-making.

### **LNI3032 PROFESSIONAL PRACTICES I**

Create possible objective and critical solutions to international business problems or opportunities from an academic perspective during professional practices to contrast theory with organizational reality.

### **LNI3042 SELECT TOPICS I**

Analyze strategic logistics management topics, by studying theories, models, solving cases and group discussions, to develop applications in multinational companies in developed and emerging markets in the world.

### **LNI3092 GLOBAL SUPPLY CHAIN MANAGEMENT**

Understand global and international operations in terms of processes and supply chains, analyzing the quantitative and qualitative tools managers have at their disposal to develop strategies that are aligned to with company's mission that result in proposals for sustainable competitive priorities.

### **LNI3072 TALENT MANAGEMENT IN MULTINATIONAL COMPANIES**

Examine the strategic axes of talent management in multina-

tional companies, analyzing different human management theoretical to design solutions to strategic human resource problems in multinational companies.

#### **LNI3052 GLOBAL BUSINESS ENVIRONMENT**

Understand the global environment forces that impact business in countries by identifying the cultural, social and geopolitical entities of each region of the world to analyze the external factors that influence each organization.

#### **LNI3082 REGIONAL BUSINESS STUDIES I**

Analyze business models of Latin American multinational companies by evaluating economic, financial and administrative factors to identify the feasibility and potential of penetrating Latin American markets from the perspective of an independent investor and/or a multinational corporation.

#### **LMK3102 INTERNATIONAL MARKETING**

Identify international and global marketing concepts and theories, applying analysis tools to develop successful strategies for products and services in international markets to improve the position of the company in the market.

#### **LNI3062 SELECT TOPICS 2**

Analyze current international business topics related by studying theories and models to strengthen your knowledge of the challenges and opportunities that multinational companies face in this new global environment.

#### **LFP4052 INTERNATIONAL FINANCE MANAGEMENT**

Apply financial tools to situations of exchange rate risk, hedging, interest rate or international investment, using contemporary corporate cases to identify the factors that decrease the volatility of cash flows in a company.

#### **LNI4032 REGIONAL BUSINESS STUDIES 2**

Develop a global vision of the economic, social and cultural reality of the European Union by analyzing European institutions and their negotiation processes, to interpret the problems of the region and identify possible solutions.

#### **ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

#### **LNI4022 INTERNATIONAL LOGISTICS**

Understand logistic activities in international companies, analyzing theoretical transport systems, logistics operations,

inventories and operational logistical costs models to identify the most efficient ones.

#### **LNI4042 PROFESSIONAL PRACTICES 2**

Evaluate business performance from an academic perspective by applying theoretical knowledge of international business in real work environments, to identify problems and develop proposals for specific, objective, creative and critical solutions.

#### **LNI4012 REGULATION OF INTERNATIONAL BUSINESS**

Interpret the legal and non-legal elements that regulate business in the world and that impact companies by understanding different legal regulations to develop a theoretical legal basis when conducting international business.

#### **LNI4082 MANAGING FOREIGN TRADE**

Analyze export and import business operations by examining trade regulations, Mexico's foreign trade processes and treaties to identify their importance for the Mexican economy.

#### **LNI4062 INTERNATIONAL CORPORATE STRATEGY**

Apply the concepts of international corporate strategy using different methods and tools to develop strategic plans (of academic an academic type) for multinational companies.

#### **LNI4052 INTERNATIONAL NEGOTIATIONS**

Design negotiation strategies between international business companies using negotiation techniques to evaluate the best global international negotiations practices.

#### **LNI4072 SELECT TOPICS 3**

Examine brand-consumer topics in the 21st century, examining the communication strategies of MNCs and knowledge and advocacy tools to develop advertising campaigns for a global brand in a specific market or region.

#### **LNI4092 COMMERCIAL TREATIES**

Relate the concept of trade treaty from a theoretical and historical perspective, analyzing different trade agreements between Mexico and the world to identify the opportunities and challenges that these represent for international business.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \***

**MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

*\*UDLAP's General Education (GenEd) courses.*

# CULINARY ARTS

## LCU1012 CULINARY BASICS

Identify culinary techniques to apply them to food and basic preparations through specific processes that can be applied to recipes in current salty cuisine.

## ADM1012 MANAGEMENT FUNDAMENTALS

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## CON1012 ACCOUNTING

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## LMK1012 FUNDAMENTALS OF MARKETING

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## LHR1012 HOTEL AND RESTAURANT MANAGEMENT

Explain the most relevant operation and management areas

of lodging and food services, analyzing the quality of services to understand the concepts and characteristics offered by hotels and restaurants.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## LHR1022 SAFETY IN FOOD HANDLING

Identify the principles of hygienic food handling in order to explain the contamination and transmission of diseases, by managing them, analyzing their stages, food processing and appropriate sanitary conditions in their reception and storage.

## LCU1022 CULINARY TECHNIQUES

Identify different cooking methods, by studying the physical, chemical processes applied to different food, in order to develop dishes in kitchens and/or labs.

## LHR2012 FOOD COMPOSITION

Identify the physical and chemical changes that food undergoes during different elaboration processes, verifying and comparing their characteristics and their positive and/or unfavorable effects in the final products to understand the structure of food.

## CON2012 COST ACCOUNTING I

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

## LCU2032 GASTRONOMY IN MEXICO AND THE WORLD

Identify the eras and evolution that cuisine has had throughout history, analyzing the different influences of other countries to compare the consistency and taste of the products.

## ESP0022 ACADEMIC WRITING \*

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LCU2022 BREAD MAKING**

Identify bread-making raw materials and equipment, in order to make bread with different textures, by applying basic techniques to produce it with the highest quality standards.

### **LCU2012 CULINARY PRACTICES I**

Apply your knowledge and acquire skills by joining multidisciplinary teams through culinary practices in the dining hall, performing specific jobs in different areas of the culinary arts.

### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

### **LCU2042 IDENTIFICATION AND PROCESSING OF MEAT AND FOWL**

Understand the different types of meat - bovine, fowl and game animals - by developing recipes to take advantage of every part of the animal.

### **LCU2072 IDENTIFICATION AND PROCESSING IN FISH AND SEAFOOD**

Identify the different cuts and parts of fish and seafood, in order to create diverse dishes that include them, through cooking methods and elaboration techniques.

### **LCU2052 NUTRITION IN FOOD PREPARATION**

Create menus by analyzing the recommended nutrients, functions and requirements to develop adequate food programs for each specific case.

### **LCU2082 PASTRY-MAKING I**

Apply different confectionery techniques by using raw ingredients from different countries to create basic desserts.

### **LCU2062 SOMMELIER**

Understand the wine making process from the field until its sale, including storage, service temperature, tasting and basic options through their tasting to correctly pair it to the selected meal.

### **LCU3012 COOKING FOR EVENTS**

Analyze the basic elements of a banquet - planning, organi-

zation and logistics - to carry out events, applying culinary methods and techniques.

### **LHR3042 HOTEL AND RESTAURANT MARKETING**

Apply marketing strategies in the restaurant and hotel industry through strategic planning to identify the needs of consumers.

### **LCU3032 PROFESSIONAL PRACTICES I**

Apply knowledge and acquire skills by joining multidisciplinary teams, implementing techniques and methodologies of the culinary arts to compare theory with work practices.

### **LCU3022 PASTRY-MAKING II**

Apply techniques of advanced confectionary using fats and oils, chocolate, sugar and cream to make traditional desserts.

### **LHR3112 OPERATIONS MANAGEMENT IN RESTAURANTS**

Develop controls to plan and design menus according to the needs of the consumer, identifying the essential concepts in operation and administration in food and beverage service facilities, to understand their optimal operation.

### **LHR3062 BEVERAGE SERVICE MANAGEMENT**

Understand the types, classification and elaboration of drinks, as well as the elements and the necessary planning to create a drink service company, through the theoretical-practical application of concepts and specific information.

### **LCU3072 SPANISH CUISINE**

Apply different preparation methods and techniques of Spanish cuisine, using regional products and ingredients to create dishes from the different Spanish regions.

### **LCU3092 MEXICAN CUISINE**

Identify the ingredients that merged between Europe and Mexico, in order to apply them to cooking methods and Mexican traditions that make up the national cuisine; prepare the most representative Mexican dishes.

### **LCU3052 KITCHEN DESIGN AND PLANNING**

Differentiate the main characteristics of today's kitchens, to design a professional kitchen, using techniques and taking advantage of spaces.

### **LCU3082 ROOM SERVICE**

Identify the service characteristics of different areas of the lounge-dining room-bar, applying techniques and service rules to carry out a professional service.

### **LCU3062 SELECT TOPICS I**

Analyze vanguard topics in cooking and preparation methods by making foods with new tastes, colors and presentations.

**ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

**LCU4012 PROFESSIONAL PRACTICES 2**

Develop integral solutions to problems found during your professional practices, applying theoretical and practical knowledge to relate what was learned in the classroom with what is seen in companies.

**LCU4042 CHOCOLATE AND CONFECTIONARY**

Apply techniques with different toppings with varying percentages of butter and cacao to make truffles, chocolates, marshmallows and decorative pieces, as well as your own creations.

**LCU4022 ASIAN CUISINE**

Analyze the different tastes of Asian food, understanding the different regions, their taste profiles and wide array of ingredients to make Asian cuisine recipes.

**LCU4032 FRENCH CUISINE**

Identify the characteristics of French cuisine, analyzing its regions and ingredients to cook classic French dishes.

**LCU4052 ITALIAN CUISINE**

Analyze the characteristics of Italian cuisine, using different products, equipment, cooking methods and traditions to make different Italian dishes.

**LNA4082 TECHNOLOGIES FOR FOOD PROCESSING**

Apply food conservation processes, explaining the fundamental principles that support them to process innocuous and quality food according to regulations and market requirements.

**LCU4062 SELECT TOPICS 2**

Examine confectionary topics, applying preparation techniques for classic desserts in international cuisine and to develop your own desserts.

**LCU4072 SELECT TOPICS 3**

Identify equipment and gastronomical techniques topics, analyzing the principles of modern kitchens to apply them to develop your own cookbook.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# BANKING AND INVESTMENTS

## **ADM1012 MANAGEMENT FUNDAMENTALS**

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## **LBN1012 INTRODUCTION TO FINANCIAL ANALYSIS**

Identify financial analysis bases through basic elements of financial investments to understand financial analysis in practice.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INFO012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESPO012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to con-

trol results.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## **CON2012 COST ACCOUNTING I**

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

## **ECO2012 MACROECONOMIC ENVIRONMENT**

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

## **ESPO022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **LEC2012 MICROECONOMICS I**

Identify the bases of microeconomic theory, using graphical and algebraic modeling techniques to analyze the behavior of consumers, companies and markets.

### **CON2022 FINANCIAL ADMINISTRATION**

Interpret corporate financial performance through an accounting-financial analysis to optimize operation planning and control.

### **LFP2012 MANAGEMENT ACCOUNTING**

Identify the main tools of managerial accounting, analyzing different business situations to analyze the company's decision making.

### **MAT2072 STATISTICS FOR BUSINESS II**

Apply various statistical techniques through the analysis of different statistical methodologies, regression analysis and categorical data statistics to evaluate parameters that provide information in decision-making in business problems.

### **LEC2032 MACROECONOMICS I**

Understand the product determination mechanism and other macroeconomic variables by developing and managing IS-LM and OA-DA models, in order to identify how they influence a country's economic activity.

### **LEC2052 MICROECONOMICS II**

Interpret a company's production decisions in a perfect competition market, using advanced mathematical techniques to associate the efficient use of the resources with the maximization of utilities.

### **ADM2012 INFORMATION TECHNOLOGIES IN BUSINESS**

Describe the strategic importance of information technology in organizations, evaluating its advantages and limitations in solving business problems, to apply them as support to operations, decision-making and to the development of competitive advantages in organizations.

### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynam-

ics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

### **LBN3022 INVESTMENTS 1**

Build basic strategies by justifying and applying an investment proposal, to develop a strategy with the highest profitability, and the least risk in a portfolio made up of fixed rent instruments.

### **LEC3012 MACROECONOMICS II**

Interpret product determination mechanisms and other macroeconomic variables in an open economy in the short and medium term, using IS-LM and OA-DA models to identify how they influence a country's levels of economic activity and how monetary and fiscal policy can be managed to stabilize situations. Analyze the mechanisms that determine long-term economic growth rate, using the Solow neoclassical model to identify how it influences a country's growth rate.

### **LBN3012 PROFESSIONAL PRACTICES 1**

Use an academic perspective to evaluate solutions to problems or areas of opportunity of organizations, through professional practices that will allow you to compare the knowledge you acquired during your studies in Banking and Investment with reality.

### **LBN3032 BANKING AND CURRENCY**

Identify the main strategies used by financial intermediaries, mainly commercial banks, by studying the regulations of the bank sector to apply these strategies when managing assets and liabilities in commercial banks.

### **LEC3092 ECONOMETRICS I**

Use statistical tools from specialized computer packages and databases to quantitatively analyze economic phenomena.

### **LEC3082 MEXICAN ECONOMY**

Examine the Mexican economy by carrying out a long-term retrospective analysis to connect Mexico's current economic problems to various economic theories.

### **LNI3052 GLOBAL BUSINESS ENVIRONMENT**

Understand the global environment forces that impact business in countries by identifying the cultural, social and geopolitical entities of each region of the world to analyze the external factors that influence each organization.

### **LBN4012 INVESTMENTS 2**

Build basic strategies by creating, justifying and applying investment proposals to increase profitability, and reduce risk

in a portfolio made up of variable rent instruments.

#### **LBN3042 SELECT TOPICS 1**

Analyze current corporate finance topics, studying theories and models to identify the concepts related to a company's finances.

#### **LEC4032 ECONOMETRICS II**

Analyze statistical tools using time series databases to differentiate economic and financial phenomena.

#### **ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

#### **LBN4022 PROFESSIONAL PRACTICES 2**

Evaluate business performance from an academic perspective, carrying out your professional practices to create specific, objective, creative and critical solutions to problems, showing your knowledge from the bachelor degree in Banking and Investment.

#### **LAT4012 DERIVATIVE PRODUCTS**

Describe how the derivatives markets and financial products negotiated in such markets work; apply the methods used in valuation of derivative products using mathematical tools and financial concepts to identify the risks involved.

#### **LBN4032 SELECT TOPICS 2**

Examine vanguard concepts of stock market finance by analyzing theories and concepts to relate this information to national and international financial markets.

#### **LBN4062 SELECT TOPICS 3**

Understand vanguard concepts in banking finance, applying theories and concepts and relating them to the banking industry.

#### **LBN4072 INVESTMENT BANKING**

Identify the specifics of investment bank regulations, illustrating their operations through valuation methods such as analysis of comparable companies and previous transactions, discount of cash flows and valuation of leveraged buyouts to broaden your knowledge of specialized banking

#### **LBN4042 PROFESSIONAL PRE-CERTIFICATION 1**

Evaluate the regulations, as well as legal elements, of the Mexican financial system, using financial, economic, and ac-

counting concepts to understand them.

#### **LBN4052 PROFESSIONAL PRE-CERTIFICATION 2**

Evaluate capital markets and the different types of debt, using analytic tools needed to advise customers in buying-selling their shares, obligations, bonds, certificates and/or shares of investment companies; analyze the capital markets and their relationship with the banking industry.

#### **LBN4082 PROFESSIONAL PRE-CERTIFICATION 3**

Evaluate the derivative markets, different investment societies, and types of risk through economic analysis tools and models, and valuation of variable rent financial assets to relate these concepts with the banking industry.

#### **LBN4092 FINANCIAL ANALYSIS SEMINAR**

Identify the characteristics of financial analysis by applying databases and methodologies to develop a scientific research project in banking and financial markets.

### **GENERAL STUDIES ELECTIVE IN ARTS \***

#### **ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

#### **ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

### **GENERAL STUDIES ELECTIVE IN MATH \***

#### **MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

#### **MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

### **GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

#### **COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

# ECONOMICS

*\*UDLAP's General Education (GenEd) courses.*

## **LBN1012 INTRODUCTION TO FINANCIAL ANALYSIS**

Identify financial analysis bases through basic elements of financial investments to understand financial analysis in practice.

## **LEX0112 FOREIGN LANGUAGE I \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **MAT1032 LINEAR ALGEBRA**

Solve equations by applying the theoretical processes of linear algebra and using technological resources to model applied sciences phenomena.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **MAT2012 CALCULUS II**

Apply directional derivatives and the multiple integrals of variable functions, modeling speed of change of its indicators to solve engineering, finance and science problems.

## **ECO2012 MACROECONOMIC ENVIRONMENT**

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

## **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **LEC2012 MICROECONOMICS I**

Identify the bases of microeconomic theory, using graphical and algebraic modeling techniques to analyze the behavior of consumers, companies and markets.

## **MAT2072 STATISTICS FOR BUSINESS II**

Apply various statistical techniques through the analysis of different statistical methodologies, regression analysis and categorical data statistics to evaluate parameters that provide information in decision-making in business problems.

### **LEC2022 PUBLIC FINANCE**

Identify the fundamentals of welfare theory through the intervention of the public sector in the economy, to evaluate its effect on the economic well-being of the population.

### **LEC2042 HISTORY OF ECONOMIC THOUGHT**

Understand the contributions of different economic schools of thought by analyzing the different ideas, theories and economic doctrines that have emerged to explain past and current economic events.

### **LEC2032 MACROECONOMICS I**

Understand the product determination mechanism and other macroeconomic variables by developing and managing IS-LM and OA-DA models, in order to identify how they influence a country's economic activity.

### **LEC2052 MICROECONOMICS II**

Interpret a company's production decisions in a perfect competition market, using advanced mathematical techniques to associate the efficient use of the resources with the maximization of utilities.

### **LEC3042 INTERNATIONAL ECONOMICS**

Examine countries' trade patterns based on the main theoretical approaches to infer how countries benefit from international factor mobility and economic integration.

### **LBN3022 INVESTMENTS 1**

Build basic strategies by justifying and applying an investment proposal, to develop a strategy with the highest profitability, and the least risk in a portfolio made up of fixed rent instruments.

### **LEC3012 MACROECONOMICS II**

Interpret product determination mechanisms and other macroeconomic variables in an open economy in the short and medium term, using IS-LM and OA-DA models to identify how they influence a country's levels of economic activity and how monetary and fiscal policy can be managed to stabilize situations. Analyze the mechanisms that determine long-term economic growth rate, using the Solow neoclassical model to identify how it influences a country's growth rate.

### **LEC3032 MICROECONOMICS III**

Examine consumer theory choice to identify alternative utility models. Analyze abstract reasoning based on economic tools to explain consumer behavior.

### **LEC3022 PROFESSIONAL PRACTICES 1**

Analyze problems during your professional practices, to compare the knowledge acquired during your studies in economics, and real life in organizations.

### **LEC3062 ECONOMIC GROWTH**

Examine the principles of long-term economic growth through the application of the main models of exogenous and endogenous growth, to identify the main sources of growth in both developed and developing economies.

### **LEC3092 ECONOMETRICS I**

Use statistical tools from specialized computer packages and databases to quantitatively analyze economic phenomena.

### **LEC3082 MEXICAN ECONOMY**

Examine the Mexican economy by carrying out a long-term retrospective analysis to connect Mexico's current economic problems to various economic theories.

### **LBN4012 INVESTMENTS 2**

Build basic strategies by creating, justifying and applying investment proposals to increase profitability, and reduce risk in a portfolio made up of variable rent instruments.

### **LEC3072 MACROECONOMICS III**

Compare the mechanisms to determine macroeconomic equilibrium through the development and use of mathematical models, to identify the sources of fluctuation of the main variables of goods and assets markets as well as the scope and limitations of economic policy.

### **LEC3052 SELECT TOPICS 1**

Analyze macroeconomics topics by studying theories and models to identify the global functioning of the world economy.

### **LEC3112 GAME THEORY**

Evaluate socioeconomic problems using game theory to apply strategies and make optimal decisions for diverse problems.

### **LEC4012 ECONOMIC DEVELOPMENT**

Analyze the economic and social development of different countries, using microeconomic and macroeconomic tools to identify the factors that affect economic and social progress.

### **LEC4032 ECONOMETRICS II**

Analyze statistical tools using time series databases to differentiate economic and financial phenomena.

### **LEC4052 BEHAVIORAL ECONOMICS**

Identify the limits of economic rationality, reviewing theoretical models and experimental evidence of behavioral economics to explain an individual's decisions in the markets and in their behavior as social beings.

**LEC4022 INDUSTRIAL ORGANIZATION**

Analyze market interactions through production systems, to determine different levels of competition using a strategic approach for different market structures.

**LEC4062 PROFESSIONAL PRACTICES 2**

Evaluate business performance in professional practices to find specific, objective, creative and critical solutions to real problems that reflect the knowledge acquired during your economics studies.

**LEC4042 SELECT TOPICS 2**

Identify microeconomics concepts through the analysis of theories to identify the behavior of supply and demand.

**LEC4132 SELECT TOPICS 3**

Explain econometrics concepts, applying statistical methods to evaluate the behavior of variables in the economy.

**LEC4122 CROSS-SECTION ECONOMETRICS**

Apply database analysis econometric techniques in panel and transverse type, using different national and international organisms' databases to quantitatively analyze economic phenomena.

**LEC4102 APPLIED ECONOMICS**

Apply different microeconomic tools using databases and microeconomic and macroeconomic theory to evaluate the impact of different economic policies.

**LEC4112 INSTITUTIONAL ECONOMICS**

Analyze the influence of the institutional, sociological and cultural framework on economic performance, reviewing theories and empirical studies from a historical perspective and the new institutional economy, to identify how institutions function and the incentives of economic agents.

**LEC4092 LABOR ECONOMICS**

Analyze how the labor market functions, applying the neo-classical approach of supply and demand, to identify the m

**LEC4072 ECONOMIC POLICIES**

Analyze the macroeconomic effects, as well as the transmission mechanisms of monetary policy, through the use of advanced mathematical models, to identify the scope and limitations of economic policy.

**LEC4082 ECONOMIC ANALYSIS SEMINAR**

Compare microeconomic and macroeconomic theory, using mathematical and econometric tools to analyze contemporary and historical economic and social problems in Mexico and other countries.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

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**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \*****COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

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**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \*****CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \*****HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*

# FINANCIAL STRATEGIES AND PUBLIC ACCOUNTING

## ADM1012 MANAGEMENT FUNDAMENTALS

Describe administration theory by explaining the administrative process and functional areas, identifying an organization's integral day-to-day business.

## LEX0112 FOREIGN LANGUAGE I \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## MAT1012 UNIVERSITY MATH

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \*

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## ESP0012 ACADEMIC REASONING \*

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## MAT1022 CALCULUS I

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## CON1012 ACCOUNTING

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## ECO1012 COMPANY AND ECONOMICS

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## LMK1012 FUNDAMENTALS OF MARKETING

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## LEX0122 FOREIGN LANGUAGE II \*

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## CON2012 COST ACCOUNTING I

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

## LDE2012 CORPORATE LAW

Examine the different systems involved in commercial companies, analyzing Mexican regulations to identify the mechanisms and legal institutions that influence their operation.

## ECO2012 MACROECONOMIC ENVIRONMENT

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

### **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

### **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **CON2022 FINANCIAL ADMINISTRATION**

Interpret corporate financial performance through an accounting-financial analysis to optimize operation planning and control.

### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

### **LFP2012 MANAGEMENT ACCOUNTING**

Identify the main tools of managerial accounting, analyzing different business situations to analyze the company's decision making.

### **MAT2072 STATISTICS FOR BUSINESS II**

Apply various statistical techniques through the analysis of different statistical methodologies, regression analysis and categorical data statistics to evaluate parameters that provide information in decision-making in business problems.

### **ADM2012 INFORMATION TECHNOLOGIES IN BUSINESS**

Describe the strategic importance of information technology in organizations, evaluating its advantages and limitations in solving business problems, to apply them as support to operations, decision-making and to the development of competitive advantages in organizations.

### **LFP3042 COST ACCOUNTING II**

Analyze new cost systems by examining their effect on the accumulation and determination of such costs, to determine pricing strategies.

### **LFP3012 INTERMEDIATE ACCOUNTING I**

Create financial statements by correctly applying national and international financial reporting standards to asset accounts to develop a presentation of international levels.

### **LFP3022 TAX LEGISLATION I**

Apply, theoretically and practically, the provisions of the Income Tax Law and its regulations, preparing the relevant tax reports and statements to identify the proper fulfillment of taxpayer obligations in tax matters.

### **LFP3032 FINANCIAL MATH**

Apply financial math concepts by using time value of money to select the right credit and saving alternatives.

### **LFP3052 PROFESSIONAL PRACTICES I**

Apply the knowledge acquired in different organizational problems through real business activities, to design accounting-financial strategies to determine solutions.

### **LFP3112 MANAGEMENT OF INVESTMENT PORTFOLIOS**

Analyze the various investment instruments available in national and international financial markets through their portfolio theory valuation to select portfolios of maximum profitability and minimum risk.

### **LFP3062 INTERMEDIATE ACCOUNTING II**

Create financial statements by correctly applying national and international Financial Reporting Standards to liabilities and capital accounts to standardize them to these levels.

### **LFP3092 FINANCIAL PROJECT EVALUATION**

Analyze investment projects, applying the main models of cash flows valuation to establish their financial viability and corporate impact.

### **LFP3102 CORPORATE FINANCE**

Analyze a company's financial information by examining corporate finance issues to define the liquidity policy and the selection of sources for corporate financing.

### **LFP3072 TAX LEGISLATION 2**

Analyze, in a comprehensive way, the Income Tax Law (ISR) for individuals and non-profit companies by examining the applicable provisions for statements and corresponding fiscal reports.

### **LFP3082 SELECT TOPICS I**

Analyze corporate finance topics, integrating contemporary financial models to develop proposals that contribute to maximizing the profitability of organizations.

**LFP4052 INTERNATIONAL FINANCE MANAGEMENT**

Apply financial tools to situations of exchange rate risk, hedging, interest rate or international investment, using contemporary corporate cases to identify the factors that decrease the volatility of cash flows in a company.

**LFP4042 SPECIAL ACCOUNTING**

Evaluate the accounting treatment that is given to special and non-profit companies by comparing real situations to correctly develop financial reports.

**ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

**LFP4012 DERIVATIVE INSTRUMENTS**

Evaluate different financial derivative instruments through the application of credit, market and operating risk models to design specific hedges.

**LFP4022 AUDITING RULES AND PROCEDURES**

Evaluate the processes involved in planning, executing and supervising an audit, applying controls and validating information to comply with the rules of registration and presentation of the financial statements.

**LFP4062 PROFESSIONAL PRACTICES 2**

Apply disciplinary knowledge in different organizational problems through real business activities to design accounting-financial strategies.

**LFP4032 SELECT TOPICS 2**

Analyze current accounting topics, applying current international regulations to develop the correct record of operations in an organization and the presentation of its financial statements.

**LFP4112 RISK MANAGEMENT**

Associate risk measurement methodologies by using discrete and continuous models to design strategies that minimize corporate financial risks.

**LFP4122 FORENSIC, OPERATIONAL AND ADMINISTRATIVE AUDITING**

Recommend the main areas of action of forensic, operational and administrative audits, reviewing corporate cases to develop proposals that contribute to fraud prevention and detection.

**LFP4072 OPINIONS**

Plan different opinions, designing auditing processes to develop the skills to present them to national and international authorities.

**LFP4102 FINANCIAL ECONOMETRICS**

Use the concepts, principles and basic tools of econometrics, using accounting-financial time series to build financial forecast models.

**LFP4082 TAX SEMINAR**

Evaluate the impact of national and international miscellaneous taxes, measuring corporate financial performance to create fiscal strategies that maximize the profitability of organizations.

**LFP4092 SELECT TOPICS 3**

Examine current tax legislation topics by applying national and international regulations to individuals and legal companies to apply them to fulfill their tax obligations in a timely manner.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

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**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

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Describe administration theory by explaining the administrative process and functional areas, identifying an organi-

# MARKETING

zation's integral day-to-day business.

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## **MAT1012 UNIVERSITY MATH**

Apply algebraic language using and operating math expressions, as well as their corresponding graphical representation to formulate and solve problems.

## **INF0012 INFORMATION TECHNOLOGIES IN THE CONSTRUCTION OF KNOWLEDGE \***

Understand pertinent information by using Information and Communication Technologies to document an economic, political, cultural and/or social problem.

## **ESP0012 ACADEMIC REASONING \***

Express academic arguments both in writing and orally, writing and presenting persuasive speeches, adapting communication basics that allow you to efficiently interact in a specific academic context.

## **MAT1022 CALCULUS I**

Apply functions derivatives and integrals of a variable to solve engineering, finance, management and science problems, by modeling indicator's speed of change.

## **CON1012 ACCOUNTING**

Identify the diverse elements of financial information through an accounting operations record and financial statements of service and commercial companies to control results.

## **ECO1012 COMPANY AND ECONOMICS**

Identify the essential aspects of economic problems by examining the basic concepts and methods of microeconomic analysis, to interpret the decisions of individuals, companies and their interaction in markets.

## **LMK1012 FUNDAMENTALS OF MARKETING**

Identify marketing strategy's principles and key elements through research and use of published sources, to design marketing strategies that improve the competitive position of a company in the market. Apply the decisions of

each element of the marketing strategy, through market research tools, in order to design marketing strategies for a real company.

## **LEX0122 FOREIGN LANGUAGE II \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

## **CON2012 COST ACCOUNTING I**

Identify the elements of a product or service's cost, locating them in the income statement, production cost statement or cost of goods sold statement, using the main cost accumulation systems to correctly determine the cost.

## **LDE2012 CORPORATE LAW**

Examine the different systems involved in commercial companies, analyzing Mexican regulations to identify the mechanisms and legal institutions that influence their operation.

## **ECO2012 MACROECONOMIC ENVIRONMENT**

Identify the basic indicators and models of macroeconomics through the analysis of long and short-term macroeconomic theories to infer the implications of a country's economic and political events.

## **ESP0022 ACADEMIC WRITING \***

Develop academic articles of your major by managing specialized information and applying academic and scientific standards to disseminate knowledge.

## **MAT2022 STATISTICS FOR BUSINESS I**

Apply various statistical techniques through different descriptive and inferential statistics methodologies to estimate parameters for decision-making of real business and economics problems.

## **LMK2012 QUALITATIVE MARKET RESEARCH**

Understand the importance of qualitative market research as a fundamental tool of the marketing information system in organizations, applying knowledge and tools to qualitative market research in order to examine consumers' motivations and attitudes during the consumption process of goods and/or services.

### **LEX0132 FOREIGN LANGUAGE III \***

Express known and/or new information in an oral and written manner, using correct vocabulary and grammar to communicate with native speakers in everyday and academic situations.

### **CON2022 FINANCIAL ADMINISTRATION**

Interpret corporate financial performance through an accounting-financial analysis to optimize operation planning and control.

### **LMK2022 CONSUMER BEHAVIOR**

Explain consumer behavior in marketing using the analysis of theories, cases and research tools to achieve effective market segmentation. Apply consumer behavior knowledge to marketing in order to meet the market's needs, using market research tools to detect the influence factors on consumers' behavior in the search, purchase, use, and disposal of products or services.

### **ADM2022 ORGANIZATIONAL BEHAVIOR**

Distinguish the concepts and elements of behavior dynamics in people and their relationships to organizations, identifying individual and group aspects to understand people's assessment and comprehension attitudes as a fundamental part of organizational culture.

### **MAT2072 STATISTICS FOR BUSINESS II**

Apply various statistical techniques through the analysis of different statistical methodologies, regression analysis and categorical data statistics to evaluate parameters that provide information in decision-making in business problems.

### **ADM2012 INFORMATION TECHNOLOGIES IN BUSINESS**

Describe the strategic importance of information technology in organizations, evaluating its advantages and limitations in solving business problems, to apply them as support to operations, decision-making and to the development of competitive advantages in organizations.

### **LAD3012 ALGORITHMS AND DATA ANALYSIS**

Analyze computer algorithms by developing data analysis models and applying them to information systems in businesses.

### **LMK3032 INTEGRAL COMMUNICATION IN MARKETING**

Design integral communication campaigns using different marketing tools to convince the customer of the company's products or services, thus successfully commercializing them.

### **LMK3042 PRODUCT INNOVATION**

Apply product innovation factors and key elements by using market research tools and the innovation process to devel-

op proposals to strengthen and reposition products in the market.

### **LMK3022 QUANTITATIVE MARKET RESEARCH**

Apply quantitative research, statistical analysis and its graphic expression techniques, through measurement instruments and interpretation of results, to create proposals that improve the competitive position of companies.

### **LMK3012 PROFESSIONAL PRACTICES I**

Apply marketing theoretical knowledge during professional practices in an organization identifying social issues and the need for responsible and ethical practices in marketing, making use of marketing concepts and tools to develop solutions to problems that contribute to the success of the company.

### **LMK3092 BRAND MANAGEMENT**

Design a brand strategy through simulations to evaluate different competitive strategies and their financial results to develop proposals that contribute to the maximization of revenues of a company's brand portfolio.

### **LMK3082 MARKET INTELLIGENCE I**

Apply multivariate interdependence and market intelligence techniques, assessing their relevance by analyzing numerical information to produce timely and useful information according to the strategic requirements of the organization.

### **LMK3112 MARKETING AND RETAIL SALES**

Apply a strategic perspective of retail sales management using the 4 P's (product, price, place and promotion), to set sales practices according to the environment and develop product planning.

### **LMK3062 INTERNAL MARKETING**

Design internal strategies that are efficient and appropriate, applying marketing tools and concepts to develop proposals to improve the company's image and profitability, emphasizing the strategic importance of the human factor in organizations.

### **LMK3102 INTERNATIONAL MARKETING**

Identify international and global marketing concepts and theories, applying analysis tools to develop successful strategies for products and services in international markets to improve the position of the company in the market.

### **LMK3052 NEGOTIATION AND SALES**

Analyze a sales force's process, administration and performance through the application of marketing tools to interpret the challenges of the organization.

**LMK3072 SELECT TOPICS 1**

Analyze topics in the design, implementation and measurement of strategic marketing analyzing theoretical concepts to develop strategies for particular companies.

**ADM4012 ETHICS AND SOCIAL CORPORATE RESPONSIBILITY**

Analyze the impact of an organization's economic activity in society, identifying the effects of a business in a social, environmental and economic aspect, to develop proposals that contribute to society.

**LMK4022 MARKET INTELLIGENCE II**

Apply the forecasting processes of the most relevant market variables in organizations using time series forecasting methods to define the behavior of sales and market variables.

**LMK4042 SERVICE MARKETING**

Design services and systems delivery strategies for customers, suppliers, distributors and other marketing partners using information technology to develop proposals to improve the competitive position of the organization in the market.

**LMK4012 SOCIAL MARKETING**

Design social marketing strategies to plan programs to run non-profit organizations, and public or political institutions.

**LRP4022 PUBLIC RELATIONS PLANNING**

Design a professional and ethical strategic public relations plan, applying communication theories, models, tools and techniques to identify customer expectations.

**LMK4052 PROFESSIONAL PRACTICES 2**

Apply academic marketing knowledge during your professional practice with a critical and creative attitude, with objectivity, ethics and social responsibility to develop proposals that contribute to the success of the company and your professional development.

**LMK4032 SELECT TOPICS 2**

Analyze marketing creativity and innovation topics through case analysis and review of relevant concepts to develop marketing strategies that meet specific needs of public and/or political institutions.

**LMK4062 E-MARKETING**

Design e-marketing strategies using new technologies to identify Internet users and profitable marketing to develop proposals that contribute to improve the competitive position of the company in the market.

**LAD4092 BUSINESS INTELLIGENCE**

Analyze business intelligence strategies, evaluating large data volume analysis models to apply them in designing business technology solutions.

**LMK4072 STRATEGIC MARKETING**

Develop a business strategy through the application of a simulator that allows seeing the financial results and market in the short, medium and long term to construct proposals related to the entry to new segments and new markets in an international context.

**LMK4082 SELECT TOPICS 3**

Analyze market intelligence topics to develop proposals for products and/or services, effectively positioning them, through the analysis of theoretical marketing concepts.

**GENERAL STUDIES ELECTIVE IN ARTS \*****ART0022 ART AND CULTURE IN THE AMERICAS**

Identify socio-cultural development in America, by approaching its artistic expressions to establish an active dialogue with the past and its context as a part of identity.

**ART0012 ART, HISTORY AND CULTURE**

Identify how human beings define reality and expresses it, both to him/herself and the world, since the rise of western modernity, explaining the reciprocal relationship between art, history and culture, to critically defend artistic representation and expression subjects.

**GENERAL STUDIES ELECTIVE IN MATH \*****MAT0012 MATH FOR THINKING**

Apply different approaches to mathematical thinking by modeling and analyzing hypothetical and real world phenomena, to design solutions to problems related to their area of expertise and their physical environment.

**MAT0022 MATH AND CULTURE**

Develop a project that integrates math with culture, by modeling phenomena or indicators to make sustainable decisions that benefit of society.

**GENERAL STUDIES ELECTIVE IN BEHAVIORAL SCIENCES \***

**COM0012 ETHICS, SOCIETY AND ENVIRONMENT**

Discuss world problems and its local implications, analyzing socioeconomic, environmental and ethical aspects to create proposals for a tolerant society.

**COM0022 BEHAVIOR AND HUMAN DEVELOPMENT**

Identify the bio-psycho-social factors that make up integral human development, analyzing variables that affect individual and social behavior, to apply this knowledge to your academic and professional lives.

**GENERAL STUDIES ELECTIVE IN NATURAL SCIENCES \***

**CNE0012 NUTRITION AND LIFE**

Identify the relationship between nutrition and health through research that provides data on eating habits, to choose an informed everyday diet.

**CNE0022 EVOLUTION AND BIODIVERSITY**

Describe the origin of disease through causal factors to evaluate information sources on human health.

**GENERAL STUDIES ELECTIVE IN HUMANITIES \***

**HUM0012 ECOSOPHY**

Compare world representation systems by analyzing different epistemology proposals in order to reposition the current being-man relationship with other beings, starting from a fundamentally ecological philosophic dimension.

**HUM0022 HUMANISTIC THOUGHT**

Identify the humanist school of thought from a cultural socio-historical perspective, centered on the analysis of its different historical nuances to base its pertinence in contemporary culture.

*\*UDLAP's General Education (GenEd) courses.*



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