# ASIIN Seal & EQAS-Food-Label

# Accreditation Report

**Bachelor's Degree Programmes**
***Biology***
***Chemical Bacteriology and Parasitology***
***Food Science***
***Genomic Biotechnology***

Provided by
**Universidad Autónoma de Nuevo León**

Version: June 27th 2025

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# A About the Accreditation Process

| Name of the degree programme (in original language) | (Official) English translation of the name | Labels applied for [1] | Previous accreditation (issuing agency, validity) | Involved Technical Committees (TC)[2] |
|---|---|---|---|---|
| Licenciatura en Biología | Bachelor of Science in Biology | ASIIN | ASIIN, prolongation until 30 September 2024 | 10 |
| Licenciatura en Químico Bacteriólogo Parasitólogo | Bachelor of Science in Chemical Bacteriology and Parasitology | ASIIN | ASIIN, prolongation until 30 September 2024 | 10 |
| Licenciatura en Ciencia de Alimentos | Bachelor of Science in Food Science | ASIIN<br>EQAS | ASIIN, prolongation until 30 September 2024 | 08, 10 |
| Licenciatura en Biotecnología Genómica | Bachelor of Science in Genomic Biotechnology | ASIIN | ASIIN, prolongation until 30 September 2024 | 10 |
| **Date of the contract:** 24.08.2023<br>**Submission of the final version of the self-assessment report:** 20.12.2023<br>**Date of the onsite visit:** 07.-08.02.2024 | | | | |

[1] ASIIN Seal for degree programmes; EQAS Food Label.

[2] TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 02 - Electrical Engineering/Information Technology; TC 03 - Civil Engineering, Geodesy and Architecture; TC 04 - Informatics/Computer Science; TC 05 - Materials Science, Physical Technologies; TC 06 - Engineering and Management, Economics; TC 07 - Business Informatics/Information Systems; TC 08 - Agriculture, Forestry, Food Sciences, and Landscape Architecture; TC 09 - Chemistry; TC 10 - Life Sciences; TC 11 - Geosciences; TC 12 - Mathematics; TC 13 - Physics; TC 14 - Medicine.

| | |
|---|---|
| **at: San Nicolás de los Garza, Nuevo León, México** | |
| **Expert panel:**<br>Prof. Dr. Ronald Ebbert, TH Nürnberg[3]<br>Prof. Dr. Gerhard Schleining, Universität für Bodenkultur Wien<br>Prof. Dr. Dieter Langosch, Technische Universität München<br>Johanna Rose, CVUA-RRW Krefeld (Chemisches und Veterinäruntersuchungsamt Rhein-Ruhr-Wupper)<br>Thalia Hernandez Trillo, Student, Universidad Autónoma de Baja California Sur (UABCS) | |
| **Representative of the ASIIN headquarter:** Dr. Natalia Vega | |
| **Responsible decision-making committee:** Accreditation Commission for Degree Programmes | |
| **Criteria used:**<br>European Standards and Guidelines as of May 15, 2015<br>ASIIN General Criteria, as of December 10, 2015<br>Subject-Specific Criteria of Technical Committee 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture as of March 27, 2015<br>Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of June 28, 2019 | |

[3] Only on the basis of the documents provided by the University.

# B Characteristics of the Degree Programmes

| a) Name | Final degree (original/English translation) | b) Areas of Specialization | c) Corresponding level of the EQF[4] | d) Mode of Study | e) Double /Joint Degree | f) Duration | g) Credit points/unit | h) Intake rhythm & First time of offer |
|---|---|---|---|---|---|---|---|---|
| Licenciatura en Biología | B.Sc. in Biology | - | 6 | Full time | no | Model 430 = 9 semesters Model 401 = 10 Semester | Model 430 = 217 ECTS Model 401 = 220 ECTS | - 3rd week of January to 3rd week of June - 1st week of August to 3rd week of December - September 1952 |
| Licenciatura en Químico Bacteriólogo Parasitólogo | B.Sc. in Chemical Bacteriology and Parasitology | - | 6 | Full time | no | Model 430 = 9 semesters Model 401 = 10 Semester | Model 430 = 217 ECTS Model 401 = 220 ECTS | - 3rd week of January to 3rd week of June - 1st week of August to 3rd week of December - September 1952 |
| Licenciatura en Ciencia de Alimentos | B.Sc. in Food Science | - | 6 | Full time | no | Model 430 = 9 semesters Model 401 = 10 Semester | Model 430 = 217 ECTS Model 401 = 220 ECTS | - 3rd week of January to 3rd week of June - 1st week of August to 3rd week of December - September 1952 |
| Licenciatura en Biotecnología Genómica | B.Sc. in Genomic Biotechnology | - | 6 | Full time | no | Model 430 = 9 semesters Model 401 = 10 Semester | Model 430 = 217 ECTS Model 401 = 220 ECTS | - 3rd week of January to 3rd week of June - 1st week of August to 3rd week of December - September 1952 |

The Universidad Autónoma de Nuevo León (UANL) is a public university with seven campuses located across the northern Mexican state of Nuevo León. Founded on 25th September 1933, it is, currently, the third largest public university in Mexico and the largest in the northeast of the country. The university has 26 faculties and 29 colleges. It currently

[4] EQF = The European Qualifications Framework for lifelong learning

offers 359 educational programmes at secondary, higher and postgraduate levels, with more than 216,000 students and 6,894 teachers.

The College of Biological Sciences of UANL was founded in 1952 and consists of four bachelor's degree programmes: Biology, Chemical Bacteriology and Parasitology, Food Science and Genomic Biotechnology. The faculty offers also four Master's degree programmes and six PhD programmes. In 2023, the Biology programme of the College of Biological Sciences of UANL was ranked third in the country by the Universal University Rankings.

For the Bachelor's degree programme in **Biology,** the institution has presented the following profile in the self-assessment report:

"Our educational objective is to cultivate in our students a mindset of critical thinking, along with a sense of responsibility and commitment to social justice. We aim to instil in them a profound respect for both biological and cultural diversity. Our curriculum equips students with the necessary skills to:

- Apply the scientific method rigorously in the analysis of biodiversity, focusing on its structural and functional aspects. This enables them to contribute to the enrichment of species knowledge and assess their degree of vulnerability at local, regional, and national levels.
- Assess and evaluate the ecological impact and various environmental risk factors within ecosystems. By exploring the evolutionary mechanisms underlying biological processes in organisms, students gain insights into the complex interactions and dynamics of ecosystems.
- Devise effective strategies for the conservation, management, and sustainable utilization of populations and ecosystems. These strategies, formulated at the regional, state, and national levels, are grounded in a deep understanding of biological processes and are tailored to align with social and economic needs. It is imperative that such strategies operate within the confines of legal frameworks, facilitating the optimization of economic benefits for humanity through responsible natural resource management."

For the Bachelor's degree programme in **Chemical Bacteriology and Parasitology,** the institution has presented the following profile in the self-assessment report:

"To train competitive, entrepreneurs and innovating Chemical Bacteriologists-Parasitology's professionals with by

- Instilling ethical principles and socially responsible values, with an integral vision in the sustainable use of microbiological diversity.
- Gaining knowledge for implementing and validating of laboratory methods and risk assessments to prevent and control microbial and parasites diseases.
- Gaining knowledge to implement quality management systems and biotechnological processes for the community wellbeing through problem-solving in the health, environmental, agricultural and industrial sectors with an inter-, intra- and transdisciplinary focus".

For the Bachelor's degree programme in **Food Sciences** the institution has presented the following profile in the self-assessment report:

"Upon completing the Food Science program, graduates will demonstrate expertise in designing, evaluating, and supervising food handling, storage, and processing, ensuring safety and quality. They will implement effective quality control systems, fostering continuous improvement in food products and processes. Additionally, graduates will excel in innovative product development, formulating food products and supplements that meet specific nutritional needs. They will practice food science with a strong commitment to ethical and responsible standards, adhering to national and international regulations for sustainable and responsible food production".

For the Bachelor's degree programme in **Genomic Biotechnology** the institution has presented the following profile in the self-assessment report:

"The Genomic Biotechnology program aims to educate professionals who are not only well-versed in molecular diagnostics, genome manipulation, and biotechnological innovation but also possess a strong sense of ethical and social responsibility. Graduates are equipped to address complex biotechnological challenges creatively and innovatively while recognizing the broader societal implications of their work. They are globally recognized experts who actively contribute to the development of novel biotechnological solutions, making a significant impact on the well-being of society".

# C Expert Report for the ASIIN Seal[5]

## 1. The Degree Programme: Concept, Content & Implementation

**Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)**

**Evidence:**

- Self-Assessment Report
- Competence-Module-Matrix
- Annex 1. Objectives
- Annex 2. Learning Outcomes
- Annex 10. A-d. Syllabus Ba Biology, Ba Chemical Bacteriology and Parasitology, Ba Genomic Biotechnology, Food Science
- Annex 20. "Modelo Académico 2020"
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

[5] This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

**Preliminary assessment and analysis of the experts:**
The experts refer to the respective ASIIN Subject Specific Criteria (SSC) of Technical Committee 10 (Life Sciences) and 08 (Agriculture, Forestry and Food Sciences), the learning module matrices for each programme and the modules as a basis for assessing whether the intended learning outcomes of the programmes under review correspond to the competences as outlined in the SSC.

The objectives and learning outcomes for each programme are described in the SAR and on the University website. In addition, the module handbook contains the learning outcomes for each module. According to the university, the objectives and learning outcomes are regularly reviewed involving the relevant stakeholders. For instance, the "Graduate Follow-up Program" provides valuable information from graduates such as employability trends. The College of Biological Sciences is actively working towards achieving ISO 21001:2018 certification which involves a thorough assessment of the college's educational processes, including curriculum development, teaching methodologies, student support services, and continuous improvement strategies.

In the SAR, it is explained that the college currently has two different academic models: model 401 and the newly revised model 430. Therefore, objectives and learning outcomes are presented for each model (see below **Appendix**).

The university also describes the career prospects for graduates of each of the programmes reviewed. According to this, graduates of the Bachelor's degree in **Biology** have various career opportunities in the following sectors, among others NGOs specialising in environmental conservation and sustainability, government departments and agencies responsible for environmental conservation and natural resource management, government ministries and secretariats involved in public health initiatives, ecotourism companies, and public and private educational institutions and research centres.

Graduates of the **Chemical Bacteriologist Parasitology** are capable to work in several areas, for example, pharmaceuticals, agriculture, chemistry, biotechnology, and chemical supply services.

The Bachelor's degree programme in **Food Sciences** enables its graduates to work in a variety of areas such as: quality assurance and control maintaining product quality and safety; production management, optimising production processes, ensuring product consistency and quality; or research and development, contributing to the creation of new food products, improving existing formulations and enhancing the overall sensory experience for consumers.

Finally, the job market for graduates of the Bachelor's degree in **Genomic Biotechnology** is, basically, in health institutions (hospitals, health research centres and the pharmaceutical industry), in the agricultural sector (livestock and aquaculture, food industry, veterinary industry) and in public and private research centres, among others.

During the audit, the experts ask the programme coordinators about the labour market analyses used and other information about the competences and skills needed in the future. The programme coordinators explain that the main data come from the Graduate Follow-up Programme. A semester-based survey has been designed for prospective graduates in their final semester. In addition, in 2021, a collaboration was established with the Faculty's Labour Exchange and Professional Practices, and an Employers' Forum was realised. This forum provided a platform for graduates to interact with potential employers, promoting career opportunities and enhancing professional development. Recently, in 2023, a study also was initiated that should provide data on the long-term impact and outcomes of the competence-based approach. Programme coordinators explain that they are working to obtain more data from graduates to gain detailed insights into the types of jobs they are taking up. For the Food Sciences programme in particular, there is an agreement with the Nuevo León Food Cluster, which consists of 270 people involved in the food sector in the state.

After reviewing the programme objectives and learning outcomes and discussing them with the various stakeholders, the experts conclude that the descriptions of the qualification objectives are comprehensive and include the competences achieved and the possible career opportunities for graduates. The objectives and learning outcomes are made available to all stakeholders as they can be found on the UANL website. In addition, they are anchored and published in a transparent manner, making them available to students, lecturers and interested third parties. On the basis of an Objectives-Learning Outcomes Matrix and a Learning Objectives-Module Matrix presented in the annexed documents, which describe the relationship between learning outcomes and programme objectives and the modules in which students learn the skills envisaged in the PLOs, the expert group considers that the intended learning outcomes of the programmes are suitable for producing qualified graduates. They note that, in general, students and graduates appear to be satisfied with their respective programmes and feel well prepared for their future careers.

## Criterion 1.2 Name of the Degree Programme

**Evidence:**

- Self-Assessment Report
- Competence-Module-Matrix
- Annex 5. Name of the programme
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**

The experts confirm that the English translation and the original Spanish name of the bachelor's degree programmes under review correspond to the intended aims and learning outcomes. They agree that the teaching and learning content and the competence profile are consistent with the proposed titles of the programme.

## Criterion 1.3 Curriculum

**Evidence:**

- Self-Assessment Report
- Annex 8. a-d "Propuesta de rediseño del programa educativo"
- Annex 9. Program structure
- Annex 10. a-d Syllabus Biology, Chemical Bacteriology and Parasitology, Food Sciences and Genomic Biotechnology
- Annex 11. a-d Elective courses
- Annex 12. Mobility
- Annex 16. a-d Curricula layout
- Annex 20. "Modelo Académico 2020"
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica

- Discussions during the audit

**Preliminary assessment and analysis of the experts:**

Curriculum Content and structure

According to the SAR, in August 2020, the College of Biological Sciences initiated the transition from the competency-based curriculum, also known as Model 401, to an adapted curriculum, the Model 430. The educational programmes of Model 430 were worked on throughout the year 2020 until 2021 and were approved by the University Council on 9 June 2021, while the educational programmes of mixed model 430 were worked on during the first semester of 2022 and were approved by the University Council on 9 June 2022. In the current year 2024, the new curriculum is in its 6$^{th}$ semester.

The focus of this curriculum design process was to integrate “the necessary competencies and knowledge areas to provide students with a comprehensive education in the field of biological sciences. It incorporates the principles and methodologies endorsed by the university's educational model, emphasizing the acquisition of specialized knowledge, critical thinking skills, and ethical values”.

The main general changes resulting from the adaptation of the curriculum are as follows:

- Introduction of two cycles: The first cycle includes courses in various areas of initial training, including general, disciplinary and introduction to the profession. On the other hand, the courses of the second cycle aim to deepen the understanding and expertise in the specific field and to train the professional skills required to fulfil the professional profile.

- New compulsory basic courses such as Culture of Peace, Gender Culture, Social Responsibility and Sustainable Development, Ethics and Culture of Legality and Leadership, Entrepreneurship and Innovation.

- New content was introduced in the curriculum of each programme, such as molecular biology, conservation genetics, biotechnology, molecular diagnosis of parasites, biomedical chemistry, immunobiology, biotechnology industry, biophysics applied to food, microbiological diagnosis, molecular biology of eukaryotes, molecular biology of prokaryotes, annotation of viral genomes, molecular epidemiology, among others.

The curricula of the **Bachelor’s degree programmes Biology, Chemical Bacteriology and Parasitology, Food Science, and Genomic Biotechnology** are all structured in a similar way. In the new curricular model, the Bachelor's degrees are four and a half years programmes (9 semesters). Graduates are awarded a Bachelor of Science (B.Sc.) degree. In order to obtain this degree, students have to fulfil university, faculty and departmental requirements and complete 217 ECTS.

The first cycle during the two first semesters is the same for the four programmes under review. It consists of foundational or essential courses (“ACFI-G: Área Curricular de Formación Inicial-General2) that cover broad topics or disciplines with social relevance such as social responsibility and sustainable development, ethics and culture of legality, leadership, entrepreneurship and innovation etc. In addition, there are courses that focus on introducing students to fundamental concepts and terminology specific to a particular discipline (“ACFI-D: Área Curricular de Formación Inicial- Disciplinar”), e.g. Mathematics, Physics, Organic and Inorganic Chemistry, Philosophy of Science etc., and of Calculus (“ACFI-IP: Área Curricular de Formación Inicial - Introducción a la Profesión”). In order to enter the second cycle, the students must pass each of the learning units of the first cycle.

In the second cycle, from the third semester, specific courses at intermediate and advanced levels are included for each programme (see **Appendix** below). Basic, intermediate and advanced English courses are offered in the third, fourth and fifth semesters respectively. In addition, in the upper semesters, students can choose elective courses from a catalogue. These courses provide specialised and in-depth knowledge within a particular area of study.

According to the SAR, Article 9 of the Regulatory Law of Article 5 of the Constitutional Article of the Mexican Political Constitution stipulates that all undergraduate students must complete 480 hours of community service (“Servicio Social”) within a minimum period of six months. For the programmes under review in both models, students are required to complete their "social service" in the eighth semester. The description of this module states that "during this period, students will have the opportunity to apply knowledge, skills, abilities and values in activities related to the graduate's professional responsibilities, thereby contributing to their education". This includes projects in private enterprise, public administration, research institutions or other appropriate organisations.

The ninth semester consists of only one optional course (ACFP-I), in which students have to choose between a research thesis ("Seminario de investigación") or an internship ("Prácticas profesionales"). Each is worth 20 ECTS. The internship programme is remunerated and can be undertaken either on a part-time or full-time basis. According to following statistics provided by the UANL, an increasing number of students are choosing the internship option (see **2** below):

| Year | CBP | | | FS | | | B | | | GB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **2018** | | | 95 | | | 20 | | | 19 | | | 30 |
| **2019** | 49 | 76 | 125 | 14 | 28 | 42 | 15 | 22 | 37 | 16 | 26 | 42 |
| **2020** | 60 | 83 | 143 | 19 | 26 | 45 | 21 | 30 | 51 | 34 | 46 | 80 |
| **2021** | 55 | 93 | 148 | 17 | 28 | 45 | 18 | 31 | 49 | 33 | 57 | 90 |
| **2022** | 76 | 114 | 190 | 20 | 30 | 50 | 29 | 43 | 72 | 33 | 49 | 82 |

CBP: Chemical Bacteriology & Parasitology
FS: Food Science
B: Biology
GB: Genomic Biotechnology

As stated in the SAR, students on all the programmes studied are required to complete 14 extra-curricular activities as part of the AFI programme ("Actividades de Formación Integral"). These are extracurricular activities that are compulsory for graduation, but not credited (see **1.5** below).

The experts interview both students and industry representatives about the curricula of the programmes in question. On the one hand, students express satisfaction with the programmes under review. In their opinion, the curricula are well structured and provide important knowledge, practical experience as well as skills for their future careers.

On the other hand, industry representatives describe students from the programmes reviewed as highly motivated, competitive and with the necessary expertise in the specific field. However, they recommend that soft skills, in particular communication and entrepreneurial skills, should be strengthened. Regarding all programmes, they believe that more topics in administration and entrepreneurship in general should be included in the curriculum. The programme coordinators explain that such courses are included in the new curriculum e.g. the module Biobusiness ("Bionegocios") in the seventh semester of the Biology Degree programme. Particularly, industry representatives consider it important to include topics on Food Quality and Food Safety Management systems and standards and normative interpretation in the curriculum of the **Bachelor of Food Science**, taking into account the needs of industry. In addition, they find a Master's degree in Food Quality and Food safety Management desirable.

Student mobility

The UANL has several agreements with institutions around the world for interchange and student mobility and offers scholarships for undergraduate and postgraduate students for stays abroad.

In its SAR, the Exchange Program or Study Abroad Program is the focus with regard to student mobility. The candidates need to be accepted by an international host institution

with which the UANL has a cooperation agreement; or by an association, network or organisation with which a cooperation instrument for academic mobility has been established. Students who meet the necessary university criteria (eligibility) may take courses abroad during one semester (i.e. either the autumn or spring semester/term and may include the subsequent summer session following the spring semester at the host institution). The credits are recognised by the UANL.

After the pandemics, as the following table shows, the number of students participating in student exchanges is increasing:

| **Number of students** | **YEAR** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| | 34 | 33 | 28 | 20 | 7 | 11 | 26 |

Programme coordinators emphasise that about 4% of the College's students are able to go abroad. Compared to other colleges of the University, the average of the College's outgoing students is high. Students are supported by the International Office, where each school has a representative. During the audit, the students confirm that they are informed about mobility agreements and scholarships opportunities. They also feel supported.

The UANL also offers, through the International Office, the possibility of mobility stays for foreign students from institutions with which there is an agreement. During the audit, the programme coordinators explain that there are few incomings in the programmes of the College. The majority of international students come from Latin American countries. They are therefore developing a strategy to increase the number of international students. They plan to offer modules in English during the first two semesters and to organise more international activities such as conferences and workshops. They note that there is not enough funding for these projects.

The experts appreciate the scholarship programme offered by the UANL and the university's efforts to increase the internationalisation of its programmes. They understand that it is not easy to obtain financial support for this. Nevertheless, they recommend improving and further developing the internationalisation strategy for all the programmes under review and strengthening student exchange and mobility.

Specifically, one might try to foster international student exchange by making a concerted effort of raising the required funds from future employers. About 30% of the employers present on February 8 indicated that they would highly appreciate international experience of graduates and consequently would be willing to contribute to the necessary funds.

Possibly, FCB or UANL could set up a series of fellowships designated to support the living costs associated with international exchange and named after the respective funders. Particularly for the **Bachelor in Food Science**, it is very important to encourage students to go abroad, as food is an international business and students can benefit from this experience for their future careers. In addition, the internationalisation strategy could include, for example, inviting foreign lecturers, lecture series and international summer schools, and offering more courses taught only in English to attract foreign students. Similarly, a strategy to promote this mobility among students could be to inform and encourage them to take advantage of opportunities and summer scholarships (e.g. the Pacific Scholarships Programme). These are the types of scholarships and information that teachers sometimes receive directly, but many students are not aware of these scholarships and/or opportunities.

Periodic Review of the Curriculum

The curricula of the programmes under review are regularly reviewed to ensure that they remain current and relevant. This involves collaboration with stakeholders, including students, alumni and employers. Valuable feedback is actively incorporated and recent updates, such as Plan 430 for the Bachelor's programme, demonstrate a commitment to responsiveness.

During the on-site visit, the experts discuss the process of curriculum redesign from Model 401 to Model 430 and ask how these changes have improved the quality of the programmes and how this improvement is measured. The programme coordinators note that the curriculum redesign process has involved various stakeholders and data, the committee of professors who take advice from students, employers and teachers, and the results of alumni and student surveys. Every year, employers and students are also invited. They explain that it is not yet possible to measure the results of these changes precisely because there are no graduates yet, but the surveys and evaluations carried out so far show positive results. Students and industry representatives confirm their participation in this process and are informed about the changes.

Altogether, the auditors conclude that it becomes clear which knowledge, skills and competences the students acquire in each module and that the learning outcomes are clearly defined for each module. In addition, the experts are of the opinion that the electives allow for individual focal points and complementary topics. They also appreciate that the curriculum is periodically reviewed through a variety of systematic review procedures, which include different stakeholders. They judge that the curricular content of all programmes under review provides good foundational knowledge in theory and

practice. They highlight that the students and graduates seem very happy with their respective study programs and feel well prepared for their future careers. Nevertheless, considering the remarks of the different stakeholders, the experts are of the opinion that the student's soft skills should be trained more strongly in the courses. More topics in administration and entrepreneurship could be included in the curricula for all programmes, as electives. Particularly for the **Bachelor's Degree in Food Sciences,** elective courses that train skills and tools for implementing Food Quality and Food Safety management systems should be introduced as well as more contents about management and accreditation for laboratories. Furthermore, they recommend improving and further developing the internationalisation strategy for all the programmes under review and strengthening student exchange and mobility.

**Criterion 1.4 Admission Requirements**

**Evidence:**

- Self-Assessment Report
- Annex 13 "Admission"
- Annex 21 "Bylaws: Reglamento para la Admisión, Permanencia y Egreso de los Alumnos de la Universidad Autónoma de Nuevo León" (http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/06admision.pdf)
- University' Website, information about Bachelor's entrance examination: https://www.uanl.mx/tramites/concurso-de-ingreso-a-licenciatura/
- Website of National Center for Higher Education Assessment (CENEVAL): https://ceneval.edu.mx/examenes-ingreso-exani_ii/
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**
Admission requirements and procedures are set out in the University Regulations (II 1-7) and can be found on the University's website. It also includes regulations for admission of foreign students and recognition of qualifications achieved externally.

After pre-registration online and presentation of the confirmation document at the Admissions Office of the College of Biological Sciences, all applicants are required to take the National Entrance Examination for Higher Education (EXANI II). EXANI II is a widely used entrance exam by colleges and universities across the country. It is designed and administered by the General Board of the National Centre for the Evaluation of Higher Education (CENEVAL).

The EXANI II assesses basic skills and social development: reading comprehension, indirect writing and mathematical reasoning, as well as specific knowledge related to the course and English language skills at the B1 level of the Common European Framework of Reference for Languages. The personal, academic and social characteristics of the candidate are also assessed. The exam is held in a single session, has a maximum duration of 4.5 hours and consists of multiple-choice questions.

For recognition of courses carried out externally, the candidate needs to submit his/her writing application to the corresponding School or Faculty at the time of acceptance. These are based on the principles of the Lisbon Convention. The recognition of studies for undergraduate and postgraduate students will be a maximum of 50% (fifty) of the academic credits that make up the current curriculum of the educational programme in question, without taking into account the credits for social service.

Some students complain during the discussions that changing from one programme to another is often impeded by non-recognition of relevant credits earned in their original programme. The experts recommend to facilitate students changes from one program to another within the university by acknowledging credits.

The admission requirements are published on the university website and inform potential students in detail about the requirements and the necessary steps to apply for admission into the programmes. Since the rules are based on official regulations, the auditors deem them binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

**Criterion 1.5 Workload and Credits**

**Evidence:**

- Self-Assessment Report
- Annex 9. Program structure
- Annex 10. a-d Syllabus Biology, Chemical Bacteriology and Parasitology, Food Sciences and Genomic Biotechnology
- Annex 14 und 15. a-d Credit Structure
- Annex 16. a-d Curricula layout
- Annex 17 a-d. Student Schedule Biology, Chemical Bacteriology and Parasitology, Food Sciences and Genomic Bio-technology
- Annex 20. “Modelo Académico 2020”

- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**
The Bachelor's degree programmes under review (Model 430) consist of 217 credits spread across nine semesters, with an average of 24 credits per semester. According to SAR, 1 UANL credit is equivalent to 30 hours of workload, and its relationship with ECTS credits is 1 to 1.The credit system is based on the student workload, which includes contact hours and self-study time. Credits are awarded for each module based on the respective workload and are included in the module handbook. UANL presents the following overviews of the competency course structure for each degree programme and the credits required for each area:

**Bachelor's Degree in Biology**

| Model 430 Course Structure | | UANL Credits |
|---|---|---|
| First cycle | General Studies **ACFI-G** (Área Curricular de Formación Inicial General) | 10 |
| | Basic Disciplinar **ACFI-D** (Área Curricular de Formación Inicial Disciplinar) | 4 |
| | Introductory Level **ACFI-IP** (Área Curricular de Formación Inicial Introducción a la Profesión) | 32 |
| Second cycle | Intermediate Level **ACFB** (Área Curricular de Formación Básica) | 27 |
| | Specialization/Advanced **ACFP-F** (Área Curricular de Formación Profesional Fundamental) | 106 |
| | Advanced Field-Specific **ACFP-I** (Área Curricular de Formación Profesional Integradora) | 38 |
| **Total** | | **217** |

## Bachelor's Degree in Chemical Bacteriology and Parasitology

| Course Structure | | UANL Credits |
|---|---|---|
| **First cycle** | General Studies **ACFI-G** (Área Curricular de Formación Inicial General) | 10 |
| | Basic Disciplinar **ACFI-D** (Área Curricular de Formación Inicial Disciplinar) | 4 |
| | Introductory Level **ACFI-IP** (Área Curricular de Formación Inicial Introducción a la Profesión) | 32 |
| **Second cycle** | Intermediate Level **ACFB** (Área Curricular de Formación Básica) | 35 |
| | Specialization/Advanced **ACFP-F** (Área Curricular de Formación Profesional Fundamental) | 88 |
| | Advanced Field-Specific **ACFP-I** (Área Curricular de Formación Profesional Integradora) | 48 |
| **Total** | | **217** |

## Bachelor's Degree in Food Science

| Course Structure | | UANL Credits |
|---|---|---|
| **First cycle** | General Studies **ACFI-G** (Área Curricular de Formación Inicial General) | 10 |
| | Basic Disciplinar **ACFI-D** (Área Curricular de Formación Inicial Disciplinar) | 4 |
| | Introductory Level **ACFI-IP** (Área Curricular de Formación Inicial Introducción a la Profesión) | 32 |
| **Second cycle** | Intermediate Level **ACFB** (Área Curricular de Formación Básica) | 43 |
| | Specialization/Advanced **ACFP-F** (Área Curricular de Formación Profesional Fundamental) | 68 |
| | Advanced Field-Specific **ACFP-I** (Área Curricular de Formación Profesional Integradora) | 60 |
| **Total** | | **217** |

**Bachelor's Degree in Genomic Biotechnology**

| Course Structure | | UANL Credits |
|---|---|---|
| **First cycle** | General Studies **ACFI-G** (Área Curricular de Formación Inicial General) | 10 |
| | Basic Disciplinar **ACFI-D** (Área Curricular de Formación Inicial Disciplinar) | 4 |
| | Introductory Level **ACFI-IP** (Área Curricular de Formación Inicial Introducción a la Profesión) | 32 |
| **Second cycle** | Intermediate Level **ACFB** (Área Curricular de Formación Básica) | 48 |
| | Specialization/Advanced **ACFP-F** (Área Curricular de Formación Profesional Fundamental) | 55 |
| | Advanced Field-Specific **ACFP-I** (Área Curricular de Formación Profesional Integradora) | 68 |
| **Total** | | **217** |

In addition, as stated in the SAR, student schedules are allocated on a group basis. Groups are assigned to either the morning (7am to 1pm) or evening (1pm to 7pm) time slots. In cases where there are multiple groups for a term, one group will be assigned to the morning session and the other to the evening session.

During the on-site interviews, the experts ask about workload monitoring. The programme coordinators explain that the student and graduate surveys include a question on workload. Their remarks about this are taken into account. On the other hand, students feel that the workload is appropriate.

As stated in the SAR (see also **1.3 Curriculum** above), students on all programmes under review are required to complete 14 extra-curricular activities as part of the AFI programme (Actividades de Formación Integral). These extra-curricular activities are compulsory for graduation. It is emphasised that this programme aims to enrich and complement the professional development of students through a wide range of activities organised by the University and the College. These activities include various categories such as academic pursuits, research activities, language acquisition, artistic expression, cultural exploration, innovation initiatives, exchange programmes and social responsibility.

With regard to the AFI programme, the experts ask why these extra-curricular activities are not credited and why they are compulsory. The programme coordinators explain that these extracurricular activities are compulsory because they are a prerequisite for graduation,

based on the academic models of the UANL. They cannot award credits for them due to University's regulations.

The experts are satisfied that the amount and composition of the workload is described in detail for each module in the module handbook. The workload defined for each module seems generally realistic to the assessors when comparing objectives and content. Students are also satisfied with the workload. However, in **Biology**, some students feel that the workload in the fourth semester could be too high. In addition, the experts consider that the extracurricular activities of the AFI programme should be optional rather than compulsory, as they are not credited. Otherwise, if these activities are compulsory, they must be credited according to the ASIIN criteria and European standards.

**Criterion 1.6 Didactic and Teaching Methodology**

**Evidence:**

- Self-Assessment Report
- Annex 10. a-d Syllabus Biology, Chemical Bacteriology and Parasitology, Food Sciences and Genomic Biotechnology
- Annex 18.a-d Educational methodologies Biology, Chemical Bacteriology and Parasitology, Food Sciences and Genomic Biotechnology
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**

According to the SAR, the degree programmes under review apply different didactic methodologies tailored to each module, including theory, scheduled laboratory work with practical sessions, presentations, case studies, projects, and teamwork. These methodologies aim to improve knowledge dissemination, foster critical thinking, promote analytical and problem-solving skills, as well as communication skills. In addition, students

have the opportunity to complete a thesis project or an independent research endeavour under faculty supervision to explore a specific area of interest. They may also participate in social service activities to contribute to the community and gain hands-on experience in relevant areas. The courses incorporate digital tools, and online courses are also available. As stated in the SAR, the used learning and teaching methods are reviewed continuously.

In the discussions during the on-site visit, the teaching staff explains its teaching experience during the pandemic. Although this time was challenging for students and teachers both, teachers learned to use and implement new digital tools in the courses and new methodologies for teaching. They participated in training activities offered by the university focused on digital teaching. The College established 31 hybrid classrooms and 29 hybrid laboratories. Students are of the opinion that there are still too many online courses and that they would prefer to have more face-to-face courses.

The experts appreciate the diversity of teaching methods and believe that they ensure that the module objectives and the overall intended learning outcomes are achieved. However, FCB is encouraged to reduce the extent of online teaching as per suggestions of the students.

**Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 1:**

The UANL states that a petition has been submitted to the university authorities to have the formative activities (AFI) recognised for credit according to ASIIN criteria and European standards. It provided a copy of the petition. The experts appreciate that the College of Biological Sciences has reacted immediately and understand that this decision has to be taken centrally. However, as this process has only just begun and no decision has yet been taken by the university authorities, the expert group maintains its previous assessment and the requirement **A1**.

According to the UANL, soft skills such as communication and entrepreneurial skills are included in all the programmes studied. Various modules (e.g. Leadership, Entrepreneurship and Innovation, Social Responsibility, Bio-economics) as well as community service activities are designed to develop students' soft skills. In addition, the Professional Performance Seminar aims to enable students to develop a robust toolkit for seamless integration into companies and the workforce. In any case, the university is planning to expand the range of optional courses to include additional modules or courses on administration, entrepreneurship and courses tailored to industry needs.

Regarding the Bachelor of Food Science, the University notes that training skills and tools for the implementation of food quality and food safety management systems are included

in the curriculum (e.g. Food Microbiology, Food Safety, Food Quality Systems, and elective modules such as Applied Parasitology in Foods, Molecular Diagnosis, Predictive Microbiology, and Microbiological Diagnosis). Additionally, the study programme is planning to reinforce content related to Food Quality and Food Safety in other modules or courses such as Food Preservation, Food Technology of Animal Origin, Plant-based Food Technology, Sensory Evaluation and New Product Development. The experts appreciate these efforts and consider it a good strategy to include more topics on administration and entrepreneurship in the curricula of all programmes as elective courses. Particularly for the Bachelor of Food Science, the auditors are of the opinion that elective courses should be included that provide skills and tools for the implementation of food quality and food safety management systems, as well as more content on laboratory management and accreditation.

The UANL states that in order to support the internationalisation strategy, the mechanisms for the promotion of scientific summer programmes will be strengthened. The focus is on Canada and the USA. It is also actively seeking partnerships with universities, particularly, in France and Colombia, to expand its portfolio of double degree courses. The experts encourage the UANL to follow this strategy and to further expand collaboration and strengthen student exchanges and mobility.

With regard to credit transfer or recognition, the UANL states that the College of Biological Sciences has a two-week orientation programme each semester prior to the start of classes. During this programme, students are informed about the process of transfer of credits when changing majors. This process is facilitated by the Registrar's Office at the beginning of the semester to ensure that credits from previous coursework are officially recognised for the new major. As evidence of this, the university provides links to the relevant information on the orientation programme and credit transfer website. This includes the current call for the orientation programme and requirements for applying for recognition, the procedure, the documents required and all the necessary information. As there is a clear regulation for credit recognition as well as orientation offers and the information on the procedure is published and transparent, the experts consider that this point is fulfilled.

# 2. Exams: System, Concept and Organisation

**Criterion 2 Exams: System, Concept and Organisation**

**Evidence:**

- Self-Assessment Report
- Annex 9. Program structure
- Annex 10. a-d Syllabus Biology, Chemical Bacteriology and Parasitology, Food Sciences and Genomic Biotechnology
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology:

  http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**

Students' academic performance in the undergraduate programmes under review is assessed through a variety of methods, such as written examinations, presentations, reports and projects, according to rubrics provided at the beginning of each semester. Student assessment shall be carried out using methods and instruments capable of providing evidence to verify learning outcomes based on the development of competences and performance criteria described in the curriculum and training programme. The syllabus includes the assessment procedures for the learning outcomes of each module, specifying the type and number of assessments and academic tasks to be completed by the students. It means that the assessment consists of different exams, assignments, etc. taking place progressively during the module phases, so that its partial value is already added in each phase.

In the College of Biological Sciences, three weeks are dedicated to examinations within a framework of five weeks of teaching, followed by one week dedicated to examinations,

followed by two repeat cycles throughout the semester. An additional week is allocated later in the term to allow students to complete any unsatisfactory work.

The minimum pass mark is set at 70 points on a scale of 0 to 100. In the new curriculum model, students must successfully complete the first academic cycle as a prerequisite for progression to the subsequent second cycle. This crucial progression requirement ensures that students have acquired the basic knowledge and skills necessary to undertake the more advanced coursework and challenges of the second cycle.

In accordance with the UANL General Examination Regulations, students have a total of six opportunities for resits. After exhausting these opportunities, the student forfeits their right to repeat the module permanently and cannot continue in the Programme. The student who does not pass at the first opportunity will only be able to participate in the second chance assessment process if at least 70% of the learning activities defined in the analytical programme of the module are completed.

In reply to a question from the experts about curriculum, students answer that they are satisfied with the structure and number of exams. They appreciate that the final grade is based on the assessment of several activities during the course and not only on a final exam. In this way, each phase or subject are evaluated separately, and they can focus on a specific topic. This way is, in their opinion, easy to follow and facilitates the learning process.

In addition, the programme coordinators explain during the discussions that it is regularly reviewed whether the exams do adequately determine the achievement of the learning objectives. There is a group of professors that oversees the exams. A quality control mechanism for the exams following ISO is used.

After reviewing the SAR and the module handbook of each programme under review, the experts noted that, similar to the previous model 401, the current model 430 requires students to choose between a final thesis and an internship in the last semester of their studies, each worth 20 credits. According to the statistics presented in the SAR, the number of students opting for the internship has increased significantly during the year 2022, especially in the Biology and Chemical Bacteriology & Parasitology programmes. The programme coordinators confirm this fact and explain that some of the students do not plan to continue their academic education with a Master's degree and are therefore not focused on research activities. The internship is a formal programme that provides them with practical experience in a professional environment related to their field of study. This option allows students to apply their theoretical knowledge in a real-world context and gain valuable industry experience. In addition, they explain that due to a central decision by the university, most institutes no longer offer research theses.

The experts also discuss the final report submitted at the end of the internship. The programme coordinators explain that the company where the internship takes place evaluates the report. A professor is assigned as supervisor who oversees the internship and an oral presentation of the results. There is no grade, only a passing or failing grade. The auditors revise the sample of exams, internship reports and thesis provided by the University. They confirm that the exams prove that the level of the students' academic performance and the modules' contents is sufficient for the respective programme. Furthermore, they are of the opinion that the number and distribution of exams ensure an adequate workload as well as sufficient time for preparation.

However, the experts are of the opinion that the academic quality of the internship reports is extremely variable and partly not appropriate. Some of the reports did not meet the requirements. While the experts appreciate the inclusion of practical experience through an internship, they caution that such practical exposure cannot replace the individual research experience during a thesis. They suggest that the minimal requirements of the contents and structure of the final report documenting the internship need to be defined. Consequently, the experts urge UANL to explore and propose a model ensuring that project-planning, problem-solving and data documentation skills are acquired. Alternative to on-site theses and internship reports, equivalent skills may be gained through short projects, summer school projects, or social service, providing appropriate academic contexts. The experts stress that in all these cases the respective project must be documented by a written report at the academic bachelor level and possibly an oral presentation showing that the students work independently on a set task. Accordingly, directives to the students need to set out the criteria for an adequate structure and contents of the reports. Experts also propose that planning, execution, documentation and presentation of the project must not exceed one semester (extensions only in the event of sickness documented by a certified physician) for the sake of not extending the total period of time required for graduation. Also, reports should be limited in length.

To summarize, at present it is felt that the interchangeability of thesis and internship does not meet the ASIIN criteria, which require a mandatory final project or thesis that demonstrates the student's ability to work independently on a task at the intended level of the programme. That final project could be equivalent to a BS thesis, or be based on the internship, a summer school, short project, or social service. The experts expect to receive a proposition by the FCB detailing how comparable academic standards can be ascertained independent on the specific approach leading to the final project.

**Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 2:**

Concerning the final project or thesis, the College provides in Appendix 4 new guidelines for the final report and a model checklist for evaluating the said report. Accordingly, the model for the final report will have the following structure: abstract in Spanish and English, proposal for improvement or solution to a problem within the company, including an introduction with the problem statement, justification, overall objective, specific objectives, methodology, results, discussion, final conclusions and references. It will also include general information about the company, details of the work area, a list of competences acquired during the placement, a SWOT analysis of the student's performance, personal contributions to the company. The statement notes that the proposed model aims to maintain consistency with university regulations while increasing the quality and relevance of the projects undertaken by students. Therefore, the model aims to standardize the academic standards of final reports for internships as well as for the short research project, by designing an evaluation rubric for professors to ensure compliance with project planning, problem/solving and application of the scientific method, along with a guide for students detailing the precise elements required for these final reports.

As shown in Appendix 5, the College states that for the short research project, the final report model will follow this structure: abstract in Spanish and English, introduction, background, objectives and/or hypotheses, materials and methods, results and discussion, conclusions and references.

It is also emphasised that students in all programmes under review must give a final oral presentation, demonstrating that they have worked independently on a given task, whether it is a thesis, a short research project, an internship or an exchange/mobility. Following the oral presentation, a committee questions the student on the project, deliberates and communicates its verdict orally to the student and the public.

In addition, the College notes that project planning and problem solving skills are developed not only through the preparation of the final internship projects or short research projects, but also through reports in various modules and during community service, where students make a seminar/conference-style poster presentation, which is evaluated by professors and recognised in a ceremony for the best poster. Students also acquire these skills through summer research programmes or volunteering in various laboratories at the College. Furthermore, the bachelor's degree programmes in Biology and Genomic Biotechnology include the module "Research Methodology" and the bachelor's

degree programme in Food Science includes the module "Writing Technical and Scientific Documents".

The experts appreciate these explanations and the proposal of a new model for the reports. After revising and reviewing the proposed guidelines and evaluation criteria for the final internship projects and for the short research project, they are of the opinion that there should be a thesis document with specified requirements, although the practical work, or part of it could be done during an internship. Examples of reports need to be provided by UANL. Therefore, the experts are of the opinion that the requirement **A2** is not fulfilled yet.

# 3. Resources

**Criterion 3.1 Staff and Development**

**Evidence:**

- Self-Assessment Report
- Annex 10. A-d. Syllabus Ba Biology, Ba Chemical Bacteriology and Parasitology, Ba Genomic Biotechnology, Food Science
- Academic staff data: http://www.fcb.uanl.mx/nw/es/acerca-de-la-fcb/profesores
- Academic Staff Rules ("Leyes y Reglamentos de la UANL, Reglamento del Personal Académico"): http://transparencia.uanl.mx/secciones/normatividad_vigente/archivos/Normatividad_vigente/14personalacademico.pdf
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**
According to the SAR, faculty members in the College of Biological Sciences have the flexibility to teach in one or more programmes simultaneously within the College and during any given academic term. Currently, there are 229 teachers in the college. The University presents following numbers regarding the College's teaching staff:

| Professors | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|
| **Full time** | 166 | 161 | 154 | 151 | 143 | 143 | 140 |
| **Part Time** | 3 | 2 | 3 | 2 | 2 | 1 | 1 |
| **Adjunct** | 81 | 83 | 85 | 74 | 74 | 80 | 88 |
| **Total** | 250 | 246 | 242 | 227 | 219 | 224 | 229 |

| Staff | | | | |
|---|---|---|---|---|
| **Professors** | **PhD** | **Masters** | **Bachelor** | **Total** |
| **2017** | 158 | 51 | 41 | 250 |
| **2018** | 157 | 55 | 34 | 246 |
| **2019** | 157 | 52 | 33 | 242 |
| **2020** | 157 | 46 | 24 | 227 |
| **2021** | 155 | 46 | 18 | 219 |
| **2022** | 149 | 47 | 28 | 224 |
| **2023** | 149 | 58 | 22 | 229 |

Recruiting new teaching staff follows a defined procedure according to the University's regulations. It includes a "concurso de oposición", an academic evaluation procedure for the selection, promotion and appointment of members of the academic staff of the University.

The auditors ask the programme coordinators why staff numbers have fallen by about 8% over the past seven years. They explain that this is partly due to the number of retirements, which increased after the pandemic. On the other hand, the recruitment process is long and complicated, especially for full-time professors. They need central authorisation to hire more lecturers. It depends mostly on federal funds, which are influenced by the economic situation in Mexico. They stress that they monitor whether they have enough professors to teach all the courses offered.

In terms of staff development, workshops are organized to refresh and deepen various didactic skills. During the audit, the teachers confirmed that the university supports them with such offers. During the pandemic, training focused on virtual classrooms and digital tools. Teachers are also encouraged to study abroad or take part in international research projects and conferences to broaden their knowledge, improve their English and build

international networks. Academic staff are actively involved in research projects and participate in programmes that recognize their achievements, such as the National System of Researchers (SNI), the “Programme for the Improvement of Professors” (PRODEP) and the Academic Incentive Programme.

The Academic Incentive Programme ("Programa de estímulos al desempeño del personal docente") is a programme that recognizes and rewards faculty members for their exceptional performance. Its purpose is to motivate and create the right economic conditions for quality staff to remain in or enter the teaching profession, by granting benefits to academic staff who demonstrate consistency, dedication and quality in the academic performance of the University's main functions: teaching, research and dissemination of culture. It consists of the creation of a fund that allows the beneficiary to receive a monthly amount ranging from one UMA (Unit of Measurement and Updating) for the lowest level to fourteen UMAs for the highest level reached, according to their activity reports. The incentive lasts for one year. The experts discuss this with the teaching staff and note that these incentives apply only to full professors. During the discussions, adjunct professors complained about their low salaries and wanted more incentives for themselves, as well as more information about opportunities to improve their careers. They also wanted more financial support for attending conferences and international group work. In addition, full-time professors can apply for a sabbatical every six years. During the discussions, the teachers explain that the sabbatical is not useful because the financial support is not sufficient. As a result, few take up the offer.

In summary, the experts confirm that the composition and academic orientation of the teaching staff is appropriate for the successful implementation and sustainability of the programme. They take a positive view of the incentive scheme. However, in view of impending retirements, the university should plan ahead for the development of human resources and increase the number of full-time professors, thus reverting the bespoke downward trend in the number of full-time professors. In addition, they consider it desirable to introduce more incentives for adjunct professors. The experts also are of the opinion that the University should establish organisational structures that support the development of research and teaching networks, with a particular focus on international staff mobility.

**Criterion 3.2 Student Support and Student Services**

**Evidence:**

- Self-Assessment Report
- Module descriptions

- Academic staff data: http://www.fcb.uanl.mx/nw/es/acerca-de-la-fcb/profesores
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**
As stated in the SAR provided by the University, there is a Tutorial (Mentoring) Program. A tutor or mentor is assigned to each student group. They provide general academic advice, information on career opportunities and skills development, and address personal concerns in a confidential manner. Mentor/student meetings take place on a regular basis, with a minimum of one meeting per week throughout the semester. Additional meetings are available as required. In addition, since 2006, the College of Biological Sciences has implemented the Peer Academic Tutoring Programme ("Programa de Pares"), which offers free academic advice in mathematics by fellow students with a deep understanding of the challenges their peers face. They meet with students on a weekly basis. However, students do not seem to be well informed about these opportunities.

The UANL uses the SIASE system, which offers a wide range of functions, including access to personal data, transcripts of records, module schedules, grades, account statements, general announcements and much more. To ensure the security of student information, the system implements individual passwords and usernames, allowing authorised users exclusive access. There is also a mobile application designed to provide convenient access to important information for UANL students (E-UANL). It offers features that allow students to access their module schedules, view their grades, and keep up to date with general announcements. In addition, e-UANL provides access to the university's learning management system, NEXUS. Through NEXUS, students can access online module materials, participate in discussions, submit assignments and benefit from various learning resources. The College has also established a number of administrative support offices to streamline specific areas of focus and promote effective management. These co-

ordinations cover a wide range of responsibilities and ensure the smooth running and success of various aspects within the College.

During the discussions, students highlight the university's scholarship programme for low-income students. About 50% receive a scholarship and pay no or reduced tuition fees. There are different ways to obtain a fellowship (e.g. sports, good grades, work for FCB) and the application process is very easy. Other students with good grades have the opportunity to work as assistants, for example in the library or laboratories.

According to the feedback of the students interviewed, the schedule or timetable for the semester is sometimes not provided in time, especially when it comes to the identity of the teachers teaching the different groups of a course. For this reason, they cannot plan the semester adequately. The experts understand, however, that the different popularities of teachers among the students made the previous practise of a more open communication of teacher/course association impracticable.

In summary, students generally have a very good relationship with their teachers and alumni still maintain contact with the institution and staff and are very proud of the institution. Both students and staff confirm that there is always an academic advisor available to work with students on any questions or problems. The experts consider that the tutorial and mentoring system in place is good although it may in practise not be quite as intense as described in the SAR. However, students should receive more information about these services. In addition, the UANL and the Faculty should make sure that the staff knows their courses at an appropriate time prior to the start of the semester and that the semester schedule is delivered on time to the students.

**Criterion 3.3 Funds and equipment**

**Evidence:**

- Self-Assessment Report
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos

- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**
As a public institution, the UANL depends on federal funding and tuition fees. The College of Biological Sciences also seeks to obtain additional funding from research projects funded by organisations such as CONACYT PROMEP, ProActi and other research projects, in addition to consultancy and client services and school funding. These funds have enabled the acquisition of various equipment, including computers, microscopes, PCR machines, ovens, etc. In addition, during the COVID-19 time, 31 hybrid classrooms and 26 hybrid laboratories were established.

The College consists of four main buildings, referred to as A, B, C and D, containing a number of classrooms and laboratories. As stated in the SAR, in line with the remodelling programme (Model 430), there are ongoing efforts to renovate certain laboratories to meet these evolving needs. For example, Botany I and II, Entomology I, Morphology and Histology, Mastozoology, General II U-A, Analytical Chemistry, Parasitology I and Parasitology II laboratories have already been renovated. New labs like Food Science I, Parasitology III, Parasitology IV and Food Science II were established.

The College of Biological Sciences Library has an extensive collection of 23,086 volumes and 11,018 different titles. In addition, it provides valuable electronic services accessible through its website. It is an integral part of the main library system of the UANL.

During the on-site visit, the experts were able to see some of the central facilities, relevant research and teaching facilities, and in particular, all the different laboratories available for the courses examined. In summary, the team of experts considers that the available resources, technical equipment and infrastructure (laboratories, studios, library, seminar rooms, etc.) meet the requirements for an adequate support of the programme. In the opinion of the experts, the laboratories are adequate and well suited for teaching purposes.

**Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 3:**

In terms of staff development, the statement notes that the College actively seeks to expand its faculty through the recruitment of full-time professors each year as part of its annual operating programme (AOP). It should be noted, however, that the recruitment of full-time professors and the provision of incentives for adjunct professors depend on the allocation of federal funds to the College, which are managed by the Human Resources

Department. As evidence, the School provides a certificate from the Faculty's Financial Coordination Unit, which states that, within the framework of the budget planning for the year 2024, the staff required by the Faculty of Biological Sciences, i.e. 10 full-time associate professors and 17 full-time full professors, has been requested from the competent bodies of the UANL.

The experts appreciate the measures taken. They are aware that the decision lies with the university and depends on the resources of the federal government. Nevertheless, since there is no response to this request and in support of the department's request, they decide to maintain their recommendation.

# 4. Transparency and Documentation

**Criterion 4.1 Module Descriptions**

**Evidence:**

- Self-Assessment Report
- Annex 10. A-d. Syllabus Ba Biology, Ba Chemical Bacteriology and Parasitology, Ba Genomic Biotechnology, Food Science
- Webpage Ba Biology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/14-biologo
- Webpage Ba Chemical Bacteriology and Parasitology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/15-quimico-bacteriologo-parasitologo
- Webpage Ba Food Science: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/16-licenciado-en-ciencia-de-alimentos
- Webpage Ba Genomic Biotechnology: http://www.fcb.uanl.mx/nw/es/oferta/licenciatura/17-licenciado-en-biotecnologia-genomica

**Discussions during the audit - Preliminary assessment and analysis of the experts:**
The module handbook for each degree programme under review is published on the university's website and is thus accessible to the students as well as to all stakeholders. The experts observe that they contain the necessary information about the persons responsible for each module, the teaching methods, the credit points awarded, the intended learning outcomes, the applicability, the forms of assessment, the admission and examination

requirements, the workload (incl. contact hours and self-study time), the literature as well as the details explaining how the final grade is calculated.

The experts are of the opinion that the module descriptions are accessible and contain the required information for each module.

**Criterion 4.2 Diploma and Diploma Supplement**

**Evidence:**

- Self-Assessment Report (SAR)
- Annex 19. a-d Sample Diploma Supplement for the degree programmes

**Preliminary assessment and analysis of the experts:**
According to the SAR, the students are awarded a Diploma Supplement after graduation. Currently, efforts are underway at the institutional level to design and develop a standardized format for this diploma. The aim is to establish a cohesive and uniform set of information that will be included in the document. However, program directors complain that they need to spend an immense amount of time in transferring grades manually from the records onto the Diploma Supplements, a process that is also error-prone.

The experts based on the samples of these documents confirm that the students of the programmes under review are awarded a Diploma Supplement in English as well as a Transcript of Records and these contain all necessary information about the degree programmes. At the same time, the experts strongly recommend UANL to make issuing the diploma supplement entirely automatic via the in-house IT team.

**Criterion 4.3 Relevant Rules**

**Evidence:**

- Self-Assessment Report
- Annex 21 “Bylaws: Reglamento para la Admisión, Permanencia y Egreso de los Alumnos de la Universidad Autónoma de Nuevo León” (http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/06admision.pdf)
- Laws and Regulations of the UANL: http://transparencia.uanl.mx/normatividad_vigente/leyesYreg.html
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**

All rules and regulations are published on the university's website and are therefore available to all stakeholders. A page with links to the rules, regulations and statutes is available, providing easy access to important information on academic conduct, ethical standards, rights and responsibilities, and other key policies that shape the university experience. These rules and regulations can be accessed via the following link: (http://transparencia.uanl.mx/normatividad_vigente/leyesYreg.html).

The experts confirm that the rights and obligations of both UANL and the students are clearly defined and binding. The students interviewed seem to be satisfied with the website and the academic intranet. They say that they can find all the information they need.

**Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 4:**

In response to the observation regarding the automation of the Diploma Supplement, the College explains that efforts are underway with the relevant authorities at UANL to implement an automatic process. As evidence, it provides a request to the International relations Office ("Secretaría de Relaciones Internacionales") to make issuing the diploma supplement entirely automatic.

The experts appreciate these efforts and the measures taken. Nevertheless, as this process is beginning and not already finished, the expert group maintain their previous assessment and the recommendation, also in support of the College's request.

# 5. Quality management: quality assessment and development

**Criterion 5 Quality management: quality assessment and development**

**Evidence:**

- Self-Assessment Report
- Annex 21 “Bylaws: Reglamento para la Admisión, Permanencia y Egreso de los Alumnos de la Universidad Autónoma de Nuevo León” (http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/06admision.pdf)
- Laws and Regulations of the UANL: http://transparencia.uanl.mx/normatividad_vigente/leyesYreg.html
- Discussions during the audit

**Preliminary assessment and analysis of the experts:**

As stated in the SAR, the College of Biological Sciences of the UANL uses several quality assurance tools to review and develop its programmes.

For example, a semester-based survey has been designed and administered to prospective graduates in their final semester. The survey is carried out through the SIASE platform (Integral System for the Administration of Educational Services), which guarantees the confidentiality and protection of personal data. The Graduate Follow-Up Programme is an important tool for collecting data that is essential for academic evaluation and the fulfilment of graduation requirements.

In addition, the EGEL (General Test of Knowledge and Skills of Graduates, called “Bachelor's Degree Graduate Examination”), a nationally recognised examination designed to assess the knowledge and academic skills of recent graduates in the biological sciences, is used. Its purpose is to determine whether graduates have the necessary knowledge and skills to enter the workforce with confidence and competence. The EGEL test allows graduate performance to be assessed and compared against a national benchmark. It also provides valuable and credible data to inform curriculum planning, assessment processes and programme improvements. By using the EGEL results, the College can take targeted action to improve the academic training of its graduates, adapt study plans and programmes, and provide relevant information to educational stakeholders, including authorities, accreditation bodies and society at large. In addition, the EGEL test provides reassurance to employers by certifying that graduates of the College of Biological Sciences are highly qualified.

The "Educational Progress Tracking System" or "Academic Trajectory Analysis Tool" (“Módulo de Trayectoria Académica”) also serves as a comprehensive platform (within SIASE) designed to monitor, evaluate and optimise the educational journey of students within academic programmes. It allows the College to meticulously track student progress by collecting data on attendance, course completion, grades and other relevant academic metrics such as average length of study.
An Annual Activity Report is published, which serves as a comprehensive document outlining the College's achievements, initiatives and progress in various areas. Through this report, the College provides a detailed insight into its educational programmes, research endeavours, community engagement and other significant activities.
Furthermore, the College is an active participant of internal and external audit processes. These audits provide a rigorous assessment of the College's operations and evaluate its management of human, financial and physical resources. Internal audit enables the College to maintain effective internal controls, ensure compliance with policies and regulations, and identify areas for improvement. External audits, conducted by independent entities, provide an additional layer of scrutiny and validation, enhancing the credibility and integrity of the College's practices.
The College of Biological Sciences is also working towards ISO 21001:2018 certification, which involves a thorough assessment of the College's educational processes, including curriculum development, teaching methods, student support services and continuous improvement strategies. The certification process involves a careful analysis of operational processes, identifying areas for improvement and implementing best practice to improve efficiency, effectiveness and overall quality.

Two or three weeks before the end of the semester, course evaluations ("teacher evaluations") are carried out and the results are systematically taken into account in the ongoing monitoring of the programme. Students are required to complete the online teacher evaluations via SIASE. Each professor can access and view their results in SIASE. The College can also access the results per question, professor, group, etc. The programme coordinators explain during the discussions that the results of these evaluations are communicated and discussed with the teachers. In case of problems, a committee deals with them and looks for solutions. However, there is no direct feedback to students on the results of the evaluation. Students can inform the tutor of problems or complaints throughout the semester. In special situations, the tutor informs the Head of Studies and action is taken.

The university provides key performance indicators on GPA, number of new students, length of study and dropout rates over the last six years for the Biology programme. However, the time taken to complete and dropout rates are only provided for Biology. As

stated in the SAR, around 85% of Biology students complete their studies in 12 or 13 semesters at the most. In addition, the experts note that the dropout/attrition rate of the Biology programme is quite high at around 40-50%. The programme coordinators suggest that this may be a consequence of the change to the new curriculum, which consists of 9 semesters as opposed to the previous 10 semesters, and that the workload has not been significantly reduced. They confirm that they are working to reduce the high drop-out rates.

The experts appreciate this, but believe that other measures should be taken to achieve this. Discussions with students revealed that there are many problems that can lead students to drop out. For example, false expectations and misconceptions about the study, as well as some difficult subjects such as maths, physics and chemistry, could be a reason for dropping out. Some biology students feel that the number of subjects in the fourth semester in particular is too high. In order to reduce the drop-out rate, the experts suggest introducing an individual knowledge test before the first semester and intensify individual tutoring during the first semester according to academic weaknesses. As a significant number of students seemed not to be aware of already existing tutoring activities, it is considered essential to inform students more efficiently about these opportunities. Also, it could be helpful to offer one or two weeks of courses in key subjects before the start of the first semester in order to level the knowledge of all new students. In general, more guidance and information sessions at the beginning are desirable. In addition, the experts consider that the system of repeating exams six times could, in some cases, lead to a delay in the progress of the programme and to drop-outs.

In conclusion, the experts agreed that the quality management system of UANL ensures continuous assessment and improvement of the programmes under review. They conclude that the Faculty has convincingly demonstrated its awareness of the quality assurance dimension of the programmes. The documentation showed how the data and information collected have been used in the revision of the programme under review. However, the experts consider that a feedback and follow-up process with students needs to be established. The development of a coherent feedback culture, including the effective closure of feedback cycles and sustainable follow-up processes, should be considered as the next steps in the development of the quality assurance system. In addition, it is generally considered advisable to collect meaningful cohort-based statistical data on completion rates, dropout rates, examination failure rates and length of study for each programme under review. The experts also recommend to continue undertaking investigations into the factors contributing to the high drop-out rates and implement targeted solutions to enhance student success in the **Biology programme**. For the other programmes under review, they ask for statistics on length of study and drop-out rates (see section **D** below).

**Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 5:**

According to the statement, UANL policy does not allow the disclosure of teacher evaluation results to students in order to effectively complete feedback cycles. However, it is pointed out that special academic situations of students are always addressed. In order to facilitate streamlined feedback to students, the administration has created a suggestion box for taking appropriate actions, which has been included in the implementation of the ISO 21001:2018 quality management system, allowing students to raise academic, administrative and personal concerns anonymously or non-anonymously.

The experts appreciate these explanations. Nevertheless, following the ASIIN criteria and the Standards and Guidelines for Quality Assurance in European Higher Education, the results of the teaching surveys and any measures derived need to be communicated to the students. For example, the relevant aspects of the teaching evaluation results could generally be discussed by the teachers during the last week of the courses. The experts request UANL to ensure consistent sharing of evaluation results with students in all courses, ideally with help of an institutionalised strategy. For this reason, they stand by their previous assessment and consequently by the requirement **A3** for this criterion.

Regarding cohort-based statistical data, the College states that the Academic Trajectory Analysis Tool will help them to implement measures to reduce negative indicators. This tool generates indicators such as failure rates, dropout rates and withdrawal rates, among others. Furthermore, it is noted that through the implementation of the ISO 21001:2018 Quality Management System, strategies are implemented to continuously improve academic processes by identifying student failure rates in each module at different stages, in order to define corrective actions to reduce dropout rates. The experts commend these strategies and encourage the College to continue to investigate the factors contributing to the high dropout rates, and to implement targeted solutions to improve student success in the Biology programme.

# D Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

**D 1.** Length of study and drop-out rate for all programmes (not only Biology programme)

# E Comment of the Higher Education Institution (15.05.2024)

The institution provided a detailed statement as well as the following additional documents:

- Length of study and drop-out rate for all programmes

The following quotes the comment of the institution:

1. „ The Degree Programme: Concept, Content & Implementation

Criterion 1.3 Curriculum

*Curriculum content and structure*

All four educational programs incorporate soft skills, such as communication and entrepreneurial skills, across a variety of modules or courses, as well as during social service experiences. For example, the Bachelor of Science in Biology offers courses in Leadership, Entrepreneurship, and Innovation; Social Responsibility; Bio-economics; and Natural Resource Management. The Bachelor of Science in Chemical Bacteriology and Parasitology includes courses in Leadership, Entrepreneurship, and Innovation; Social Responsibility; Basic Management and Economics; and Assurance and Quality Management. Similarly, the Bachelor of Science in Food Science provides courses in Leadership, Entrepreneurship, and Innovation; Social Responsibility; Introduction to Management; Bio-economics; and Economics and Management of the Food Industry. Lastly, the Bachelor of Science in Genomic Biotechnology covers Leadership, Entrepreneurship, and Innovation; Social Responsibility; Quality Management and Control; Laboratory Management; Assurance and Quality Management; Biotechnology and Society; and Technology Design and Transfer.

Additionally, in our model 430, these skills will be nurtured within the four educational programs through the Professional Performance Seminar, which aims to empower students to develop a robust toolkit for seamless integration into companies and the workforce.

*Student mobility*

In order to bolster our internationalization strategy, we will enhance mechanisms for promoting scientific summer programs, which currently focus primarily on Canada and the USA. Additionally, we are actively seeking collaborations with Universities in France and Colombia to expand our portfolio of double degree programs, building upon the existing

partnership with the Institut National des Sciences Appliquées de Lyon (INSA Lyon) in France.

*Periodic review of the curriculum*

To strengthen soft skills of all four programs, we are planning to expand the elective course offerings to include additional modules or courses on administration, entrepreneurship, and courses tailored to meet industry demands.

During the redesign of the curricula for the model 430, train skills and tools for implementing Food Quality and Food Safety management systems are addressed into the curricula of the Bachelors in Science in Food Science with modules such as: Food Microbiology, Food Safety, Food Quality Systems, along with elective modules like Applied Parasitology in Foods, Molecular Diagnosis, Predictive Microbiology, and Microbiological Diagnosis. Since currently there are no graduates of the 430 model, we will closely monitor the development of these skills.

Additionally, content related to Food Quality and Food Safety will be reinforced in other modules or courses in the Bachelor of Science in Food Science. For example: Food Preservation, Food Technology of Animal Origin, Plant-based Food Technology, Sensory Evaluation and New Product Development.

Criterion 1.4 Admission Requirements

Each semester prior to the beginning of classes, the College offers a two-week Orientation Program. During this program, students in the four educational programs are informed about the process of credit transfer when changing majors. This process is facilitated by the registrar's office at the beginning of the semester, ensuring that credits from previous coursework are officially recognized for the new major.

Link: http://www.fcb.uanl.mx/nw/es/equivalencia-de-otras-instituciones

Link: http://www.fcb.uanl.mx/nw/images/CURSO_PROPEDUTICOS_E-J24_3.pdf

Criterion 1.5 Workload and Credits

A petition has been submitted to University authorities so that the formative activities (AFI) are recognized for gaining credits according to ASIIN criteria and European standards. Please refer to Annex 1.

It is noteworthy to mention that the workload of the 4th semester in the Bachelor of Science in Biology program will be analyzed by the program's academic authorities ("Academias") responsible for curriculum planning and academic policy. These authorities will review the workload of the 4th semester to make decisions regarding each course program, including, requirements, curriculum changes, and workload adjustments.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

In addition to the final project of internships or short research projects, students in the four educational programs develop project planning and problem-solving skills throughout the elaboration of reports in different modules. These reports are written and sometimes presented orally either individually or in teams. These skills can also be achieved during social service, where students undergo a seminar/conference-type poster presentation, which is evaluated by professors and recognized in a ceremony for the best poster. Students also acquire these skills during summer research programs or volunteering in different laboratories at the College.

See Annex 2 for example of reports and posters.

Link: https://bit.ly/3WC1btv

Link: https://bit.ly/3QM04n4

Additionally, the Bachelor of Science in Biology and Genomic Biotechnology programs include in their curriculum the module "Research Methodology," aimed at applying the scientific method to topics in Biological Sciences. In the B.Sc. in Food Science, the module "Writing of Technical and Scientific Documents" is designed to guide students in examining the scientific research process and teaching them with the ability to analyze results obtained from experimentation processes. Final reports are written and sometimes presented orally either individually or in teams.

For further details, see Annex 3.

Upon reviewing final projects submitted by students who opted for internships or short research projects, we observed variability in content and structure. It is important to clarify that the report submitted by students undertaking internships adhere to the University guidelines, ensuring compliance with the established standards. Concurrently, the forthcoming proposed Model from the College will align with University guidelines while also integrating adjustments to fulfill the required criteria for final projects. This approach aims to maintain consistency with University regulations while enhancing the quality and relevance of the projects undertaken by students. Therefore, the model aims to standardize the academic standards of final reports for internships as well as for the short research project, by designing an evaluation rubric for professors to ensure compliance with project planning, problem/solving and application of the scientific method, along with a guide for students detailing the precise elements required for these final reports.

For internships, the final report model will have the following structure: abstract in Spanish and English, a proposal for improvement or solution to a problem within the company including an introduction encompassing the problem statement, justification, overall objective, specific objectives, methodology, results, discussion, final conclusions and cited literature. Additionally, it will include general information about the company, details about the work area, a list of acquired competencies during the internship, a SWOT analysis of the student's performance, personal contributions to the company.

See Annex 4 for Rubric and Guide.

Whereas for the short research project, final report model will follow this structure: abstract in Spanish and English, introduction, background, objectives and/or hypotheses, materials and methods, results and discussion, conclusions, and cited literature.

See Annex 5 for Rubric and Guide.

It is important to emphasize that all students in the four educational programs gives and oral final presentation, showing that they work independently on a set task, whether it be a thesis, short research project, internship, or exchange/mobility. Following the oral presentation, a committee conducts questioning on the project, deliberates, and verbally conveys the verdict to the student and public.

3. Resources

Criterion 3.1 Staff and Development

Each year, as part of its annual operating program (AOP), the college actively seeks to enhance its faculty roster by requesting full-time professors. The request for full-time professors is indicative of the College's efforts to bolster its teaching, research, and administrative capacities. However, the hiring of full-time professors and the provision of incentives for adjunct professor´s hinge upon the allocation of federal resources to the University, which are managed through Human Resources department. The 2024 AOP request includes, among many other things, the need for 27 full-time professors.

Please refer to Annex 6.

4. Transparency and Documentation

Criterion 4.2 Diploma and Diploma Supplement

In response to the observation regarding the automation of the Diploma Supplement, efforts are underway with the relevant authorities at UANL to implement an automatic process.

Please refer to Annex 7.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

University policies does not allow the disclosure of teacher evaluation results to students. However, special academic situations of students are always addressed. To facilitate a streamlined feedback to students the administration has created a suggestion box to take appropriate actions, which was incorporated into the implementation of the quality management system ISO 21001:2018, allowing students to anonymously or non-anonymously raise academic, administrative and personal concerns.

Link: http://www.fcb.uanl.mx/nw/es/buzon-de-sugerencias

During the two-week Orientation Program (discussed earlier). The College offers leveling courses in fundamental modules such as Biology, Chemistry, Physics, and Mathematics. During this period, students undergo two examinations: a diagnostic test at the beginning of the course and a follow-up assessment at the end to gauge their progress. Students who demonstrate deficiencies or limitations in subjects such as Physics, Mathematics, and Chemistry are provided with two extra days of tutoring. Regrettably, not all students avail themselves of this opportunity.

Please refer to Annex 8.

We also inform during the Orientation Program, various topics including, compliance with the formative activities (AFI), academic and educational model, exchange program, English Language Competency Exam, tutoring program, procedures for credit transfer and changing majors, as well as general administrative procedures such as scholarships, payments, and laboratory manuals among others.

For more details, please see the Orientation Program link:

http://www.fcb.uanl.mx/nw/images/CURSO_PROPEDUTICOS_E-J24_3.pdf).

We anticipate that the Academic Trajectory Analysis Tool discussed in the SAR (a relatively new tool for the College) will assist us in implementing measures to reduce negative indicators. This tool generates indicators such as failure rates, dropout rates, and abandonment, among others. Furthermore, the implementation of the ISO 21001:2018 quality management system has prompted the design and implementation of strategies by academic authorities responsible for curriculum planning and academic policy. These strategies aim to continuously improve academic processes by identifying failure rates of students in each module at various stages to establish corrective actions aimed at reducing dropout rates.

Please refer to Annex 9.“

# F Summary: Expert recommendations (26.05.2024)

Taking into account the additional information and the comments given by the UANL, the experts summarize their analysis and **final assessment** for the award of the seals as follows:

| Degree Programme | ASIIN Seal | Maximum duration of accreditation | Subject-specific label | Maximum duration of accreditation |
|---|---|---|---|---|
| Ba Biology | With requirements for one year | 30.09.2031 | – | |
| Ba Chemical Bacteriology and Parasitology | With requirements for one year | 30.09.2031 | – | |
| Ba Food Science | With requirements for one year | 30.09.2031 | EQAS-Food | 30.09.2031 |
| Ba Genomic Biotechnology | With requirements for one year | 30.09.2031 | – | |

## Requirements

### For all programmes

A 1. (ASIIN 1.5) Make AFI programme activities ("Actividades de Formación Integral") optional or award credits for them, as they are compulsory components of the study programme.

A 2. (ASIIN 2) Require a compulsory thesis or final project that demonstrates the student's ability to work independently on a task at the intended level of the programme and to train problem-solving and presentation skills.

A 3. (ASIIN 5) Ensure that students get a feedback on the results of those teaching evaluations they were involved in.

## Recommendations

### For all programmes

E 1. (ASIIN 1.3) It is recommended to improve and further develop the internationalisation strategy by strengthening student exchange and mobility and increasing international exchange programmes and research cooperation.

E 2. (ASIIN 1.3) It is recommended that more elective topics in business administration and entrepreneurship be included in the curriculum and that more emphasis be placed on developing soft skills, especially communication skills also to non-experts, in the courses.

E 3. (ASIIN 1.4) It is recommended to facilitate students' changes from one program to another within the university by acknowledging credits.

E 4. (ASIIN 1.6) It is recommended to further reduce the extent of online teaching.

E 5. (ASIIN 3.1) It is recommended that the number of full-time professors be increased and that incentives be introduced for adjunct professors in order to distribute and decrease the current workload for teachers.

E 6. (ASIIN 3.2) It is recommended to ensure that the semester schedule is delivered on time and to provide more information about the mentoring and tutoring programmes for students.

E 7. (ASIIN 4.2) It is recommended that UANL makes issuing the diploma supplement entirely automatic via the in-house IT team.

### For Ba Biology

E 8. (ASIIN 5) It is recommended to continue to undertake investigations into the factors contributing to the high drop-out rates and implement targeted solutions to enhance student success.

### For Ba Food Science

E 9. (ASIIN 1.2) It is recommended to increase the elective courses especially in the field of Food Quality and Food Safety Management Systems as well as more contents about management and accreditation for laboratories.

# G Comment of the Technical Committees 08- Agriculture, Forestry and Food Sciences and 10 - Life Sciences

## Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture (04.06.2024)

*Assessment and analysis for the award of the ASIIN seal:*

The Technical Committee discusses the accreditation procedure and follows the assessment of the experts without any changes.

*Assessment and analysis for the award of the EQAS-Food Label:*

The Technical Committee deems that the intended learning outcomes of the degree programmes do comply with the Subject-Specific Criteria of the Technical Committee 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture.

The Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture recommends the award of the seals as follows:

| Degree Programme | ASIIN Seal | Maximum duration of accreditation | Subject-specific label | Maximum duration of accreditation |
|---|---|---|---|---|
| Ba Food Science | With requirements for one year | 30.09.2031 | EQAS-Food | 30.09.2031 |

## Technical Committee 10 – Life Sciences (03.06.2024)

*Assessment and analysis for the award of the ASIIN seal:*

The Technical Committee discusses the procedure, which involves the reaccreditation of four degree programmes and shares the assessment of the expert group that a total of three requirements and nine recommendations should be issued. The main problem with the degree programmes is the final project. The feedback of the results of the teaching

evaluations to the students and the crediting of all compulsory courses could also be improved. The recommendations relate to academic mobility and internationalisation, electives, drop-out rates and teaching staff. With regard to the final project, the Technical Committee notes that, although this is compulsory for all students, there are various options here which apparently do not always follow the relevant regulations. In addition, it should be ensured that the final project has an appropriate scope with a corresponding number of credit points. For these reasons, the Technical Committee proposes a new formulation of requirement A2.

In addition, the Technical Committee votes in favour of upgrading recommendation E8 for the Bachelor's degree programme in Biology to a requirement (A4), as analysing the high drop-out rates and taking suitable countermeasures are important aspects of quality assurance.

Otherwise, the Technical Committee supports the proposed requirements and recommendations.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

| **Degree Programme** | **ASIIN Seal** | **Maximum duration of accreditation** | **Subject-specific label** | **Maximum duration of accreditation** |
|---|---|---|---|---|
| Ba Biology | With requirements for one year | 30.09.2031 | – | |
| Ba Chemical Bacteriology and Parasitology | With requirements for one year | 30.09.2031 | – | |
| Ba Genomic Biotechnology | With requirements for one year | 30.09.2031 | – | |

## Requirements

### For all programmes

A 1. (ASIIN 1.5) Make AFI programme activities ("Actividades de Formación Integral") optional or award credits for them, as they are compulsory components of the study programme.

A 2. (ASIIN 2) Make sure that the final project is aligned with university regulations and established standards. The depth and scientific demand need to comply with EQF 6 and an appropriate number of credit points needs to be awarded.

A 3. (ASIIN 5) Ensure that students get a feedback on the results of those teaching evaluations they were involved in.

A 4. (ASIIN 5) It is necessary to investigate the reasons for the students' high drop-out rates and to implement suitable measures for increasing students' success rate.

## Recommendations

**For all programmes**

E 1. (ASIIN 1.3) It is recommended to improve and further develop the internationalisation strategy by strengthening student exchange and mobility and increasing international exchange programmes and research cooperation.

E 2. (ASIIN 1.3) It is recommended that more elective topics in business administration and entrepreneurship be included in the curriculum and that more emphasis be placed on developing soft skills, especially communication skills also to non-experts, in the courses.

E 3. (ASIIN 1.4) It is recommended to facilitate students' changes from one program to another within the university by acknowledging credits.

E 4. (ASIIN 1.6) It is recommended to further reduce the extent of online teaching.

E 5. (ASIIN 3.1) It is recommended that the number of full-time professors be increased and that incentives be introduced for adjunct professors in order to distribute and decrease the current workload for teachers.

E 6. (ASIIN 3.2) It is recommended to ensure that the semester schedule is delivered on time and to provide more information about the mentoring and tutoring programmes for students.

E 7. (ASIIN 4.2) It is recommended that UANL makes issuing the diploma supplement entirely automatic via the in-house IT team.

**For Ba Food Science**

E 8. (ASIIN 1.2) It is recommended to increase the elective courses especially in the field of Food Quality and Food Safety Management Systems as well as more contents about management and accreditation for laboratories.

# H Decision of the Accreditation Commission (28.06.2024)

*Assessment and analysis for the award of the subject-specific ASIIN seal:*

The Accreditation Commission follows the assessment of the experts and the changes proposed by Technical Committee 10. It proposes only some specifications and minor changes to A2, E4 and E5.

*Assessment and analysis for the award of the EQAS-Food Label:*

The Accreditation Commission deems that the intended learning outcomes of the degree programmes do comply with the Subject-Specific Criteria of the Technical Committee 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture.

The Accreditation Commission decides to award the following seals:

| **Degree Programme** | **ASIIN Seal** | **Maximum duration of accreditation** | **Subject-specific label** | **Maximum duration of accreditation** |
|---|---|---|---|---|
| Ba Biology | With requirements for one year | 30.09.2031 | – | |
| Ba Chemical Bacteriology and Parasitology | With requirements for one year | 30.09.2031 | – | |
| Ba Food Science | With requirements for one year | 30.09.2031 | EQAS-Food | 30.09.2031 |
| Ba Genomic Biotechnology | With requirements for one year | 30.09.2031 | – | |

## Requirements

### For all programmes

A 1. (ASIIN 1.5) Make AFI programme activities ("Actividades de Formación Integral") optional or award credits for them, as they are compulsory components of the study programme.

A 2. (ASIIN 2) Make sure that the depth and scientific demand of the final project complies EQF 6 and that an appropriate number of credit points is awarded.

A 3. (ASIIN 5) Ensure that students get a feedback on the results of those teaching evaluations they were involved in.

### For Ba Biology

A 4. (ASIIN 5) It is necessary to investigate the reasons for the students' high drop-out rates and to implement suitable measures for increasing students' success rate.

## Recommendations

### For all programmes

E 1. (ASIIN 1.3) It is recommended to improve and further develop the internationalisation strategy by strengthening student exchange and mobility and increasing international exchange programmes and research cooperation.

E 2. (ASIIN 1.3) It is recommended that more elective topics in business administration and entrepreneurship be included in the curriculum and that more emphasis be placed on developing soft skills, especially communication skills also to non-experts, in the courses.

E 3. (ASIIN 1.4) It is recommended to facilitate students' changes from one program to another within the university by acknowledging credits.

E 4. (ASIIN 1.6) Taking into account the students' wish to reduce the extent of online teaching, it is recommended to promote the in-person exchange of students.

E 5. (ASIIN 3.1) It is recommended to increase the number of full-time professors and to introduce incentives for adjunct professors in order to distribute and decrease the current workload for teachers.

E 6. (ASIIN 3.2) It is recommended to ensure that the semester schedule is delivered on time and to provide more information about the mentoring and tutoring programmes for students.

E 7. (ASIIN 4.2) It is recommended that UANL makes issuing the diploma supplement entirely automatic via the in-house IT team.

**For Ba Food Science**

E 8. (ASIIN 1.2) It is recommended to increase the elective courses especially in the field of Food Quality and Food Safety Management Systems as well as more contents about management and accreditation for laboratories.

# I Fulfilment of Requirements (27.06.2025)

## Analysis of the experts and the Technical Committee/s (18.06.2025)

### Requirements

**For all degree programmes**

A 1. (ASIIN 1.5) Make AFI programme activities ("Actividades de Formación Integral") optional or award credits for them, as they are compulsory components of the study programme.

| **Initial Treatment** | |
|---|---|
| Peers | Fulfilled<br>Justification: The University granted authorization to assign 2 academic credits (60 hours) to the AFI activities. These credits are now integrated into the curriculum of all four programmes and will incorporated into students transcript of records as 'AFI: Actividades de Formación Integral' under AFCP-I credits, starting with the class of 2025 in accordance with institutional flexibility policies. Official Letter (Translated Excerpt – DSEL-789/2024) is provided. The experts are of the opinion that this measure is adequate. |
| TC 08 | Fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |
| TC 10 | Fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |

A 2. (ASIIN 2) Make sure that the depth and scientific demand of the final project complies EQF 6 and that an appropriate number of credit points is awarded.

| **Initial Treatment** | |
|---|---|
| Peers | fulfilled<br>Justification: The university states that a rubric was designed for the internship final projects which include indicators for scientific writing, methodological design, critical thinking, and independent analysis. In addition, a full-time advisor is assigned to each student |

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| | and weekly advising hours are installed to keep control of the scientific quality of the final projects. Samples of the final projects are provided. The experts are of the opinion that the checklist facilitates evaluation of projects and the feedback by students and advisors enables continuous improvement of the evaluation process and workload. For a future accreditation procedure, the quality of the final projects should be assessed. |
| TC 08 | Fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |
| TC 10 | Fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |

A 3. (ASIIN 5) Ensure that students get a feedback on the results of those teaching evaluations they were involved in.

| **Initial Treatment** | |
|---|---|
| Peers | Not fulfilled<br>Justification: The university clarifies that the results of the end-of-semester teaching evaluation survey are publicly accessible through the university's official transparency portal. Additionally, to provide timely feedback, a new short mid-semester survey was introduced. However, the experts note that the results published show only the statistics and average evaluation scores by which lecturers are categorized, but not the content and subjects addressed by the students to be improved. Students should receive clear feedback and be informed of the results of each course they take. For instance, the lecturer could communicate and discuss the relevant topics from the evaluation results with their students during the last semester week.<br>For the future, the experts suggest that the survey may be improved by using a rating scale instead of “si/no” answers and by including some fields for additional free comments. |
| TC 08 | Not fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |
| TC 10 | Not fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |

**For Ba Biology**

A 4. (ASIIN 5) It is necessary to investigate the reasons for the students' high drop-out rates and to implement suitable measures for increasing students' success rate.

| **Initial Treatment** | |
|---|---|
| Peers | fulfilled<br>Justification: The experts are of the opinion that the implementation of the ISO 21001:2018 system to systematically record, analyse, and address potential root causes of attrition using institutional performance indicators is a good measure. Furthermore, a brief exit survey for students who have declared their intention to discontinue their studies provides valuable insight into the reasons for dropouts. Should students encounter any issues outside of the academic realm, there are various counselling and support measures in place to assist them. These include a mental health counselling programme and a psycho-social support unit. |
| TC 10 | Fulfilled<br>Vote: unanimous<br>Justification: The TC follows the assessment of the experts. |

# Decision of the Accreditation Commission (27.06.2025)

| **Degree programme** | **ASIIN-label** | **Subject-specific label** | **Accreditation until max.** |
|---|---|---|---|
| Ba Biology | Requirement 3 not fulfilled | - | 6 months prolongation |
| Ba Chemical Bacteriology and Parasitology | Requirement 3 not fulfilled | - | 6 months prolongation |
| Ba Food Science | Requirement 3 not fulfilled | EQAS Food Label® | 6 months prolongation |
| Ba Genomic Biotechnology | Requirement 3 not fulfilled | - | 6 months prolongation |

# Appendix: Programme Learning Outcomes and Curricula

According to the University's website, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programmes:

The university presents following objectives for the Bachelor's degree programme in **Biology:**

| Model 401 | Model 430 |
|---|---|
| The educational program trains highly qualified professionals, by<br>• Gaining knowledge and skills to successfully in manage and run biodiversity and conservation programs or projects, considering legal framework.<br>• Promoting and protecting natural resources, animals n danger of extinction, public health and agricultural activities.<br>• Developing environmental solutions considering sustainable development within social diversity. | Our educational objective is to cultivate in our students a mindset of critical thinking, along with a sense of responsibility and commitment to social justice. We aim to instill in them a profound respect for both biological and cultural diversity. Our curriculum equips students with the necessary skills to:<br>• Apply the scientific method rigorously in the analysis of biodiversity, focusing on its structural and functional aspects. This enables them to contribute to the enrichment of species knowledge and assess their degree of vulnerability at local, regional, and national levels.<br>• Assess and evaluate the ecological impact and various environmental risk factors within ecosystems. By exploring the evolutionary mechanisms underlying biological processes in organisms, students gain insights into the complex interactions and dynamics of ecosystems.<br>• Devise effective strategies for the conservation, management, and sustainable utilization of populations and ecosystems. These strategies, formulated at the regional, state, and national levels, are grounded in a deep understanding of biological processes and are tailored to align with social and economic needs. It is imperative that such strategies operate within the confines of legal frameworks, facilitating the optimization of economic benefits for humanity through responsible natural resource management. |

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| | By nurturing these academic learning outcomes, our students are prepared to tackle real-world challenges in the field of biological sciences, actively contributing to the advancement of scientific knowledge and fostering sustainable practices for the benefit of society. |

The objectives of the Bachelor of Science in **Chemical Bacteriology and Parasitology** are:

| Model 401 | Model 430 |
|---|---|
| To train competitive, entrepreneurs and innovating Chemical Bacteriologists-Parasitology's professionals with by<br>• Instilling ethical principles and socially responsible values, with an integral vision in the sustainable use of microbiological diversity.<br>• Gaining knowledge for implementing and validating of laboratory methods and risk assessments to prevent and control microbial and parasites diseases,<br>• Gaining knowledge to implement quality management systems and biotechnological processes for the community wellbeing through problem-solving in the health, environmental, agricultural and industrial sectors with an inter, intra and transdisciplinary focus. | The Chemical Bacteriologist Parasitologist program learning outcomes are structured around four specific skill sets:<br>Designing Experimental Protocols: Graduates will possess the ability to design experimental protocols in the realm of biological chemistry. This skill involves the integration of both traditional and cutting-edge theoretical, methodological, and instrumental knowledge drawn from the exact sciences, biology, and chemistry. They will excel in devising structured approaches for conducting experiments that yield valuable insights.<br>Implementing Analytical Methodologies: Graduates will be proficient in implementing analytical methodologies within chemical-biological, microbiological, and biotechnological laboratories. These methodologies are applied to a wide range of fields, including biomedicine, agriculture, industry, and the environment. Their expertise ensures that the processes they employ are validated, producing results that contribute to the well-being and economic prosperity of the community.<br>Contributing to Disease Diagnosis: Graduates will play a significant role in the |

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|---|---|
| | diagnosis of autoimmune, metabolic, and infectious diseases. They will achieve this through a deep understanding of the biochemical study of cellular responses in living organisms. Their contributions will aid in the development of treatments that guarantee optimal health outcomes for individuals.<br><br>Quality Assurance and Compliance: Graduates will have the capacity to develop systems for continuous improvement and quality assurance within chemical-biological and microbiological processes. They will apply current national and international regulations, ensuring strict adherence to established requirements. This commitment to rigor and objectivity allows them to accurately determine the properties of the products obtained, ultimately benefiting society as a whole.<br><br>These learning outcomes equip Chemical Bacteriologist Parasitology graduates with a robust skill set, enabling them to excel in diverse scientific and practical applications while contributing positively to the health, economy, and well-being of their communities. |

The Bachelor's Degree in **Food Sciences** aims to:

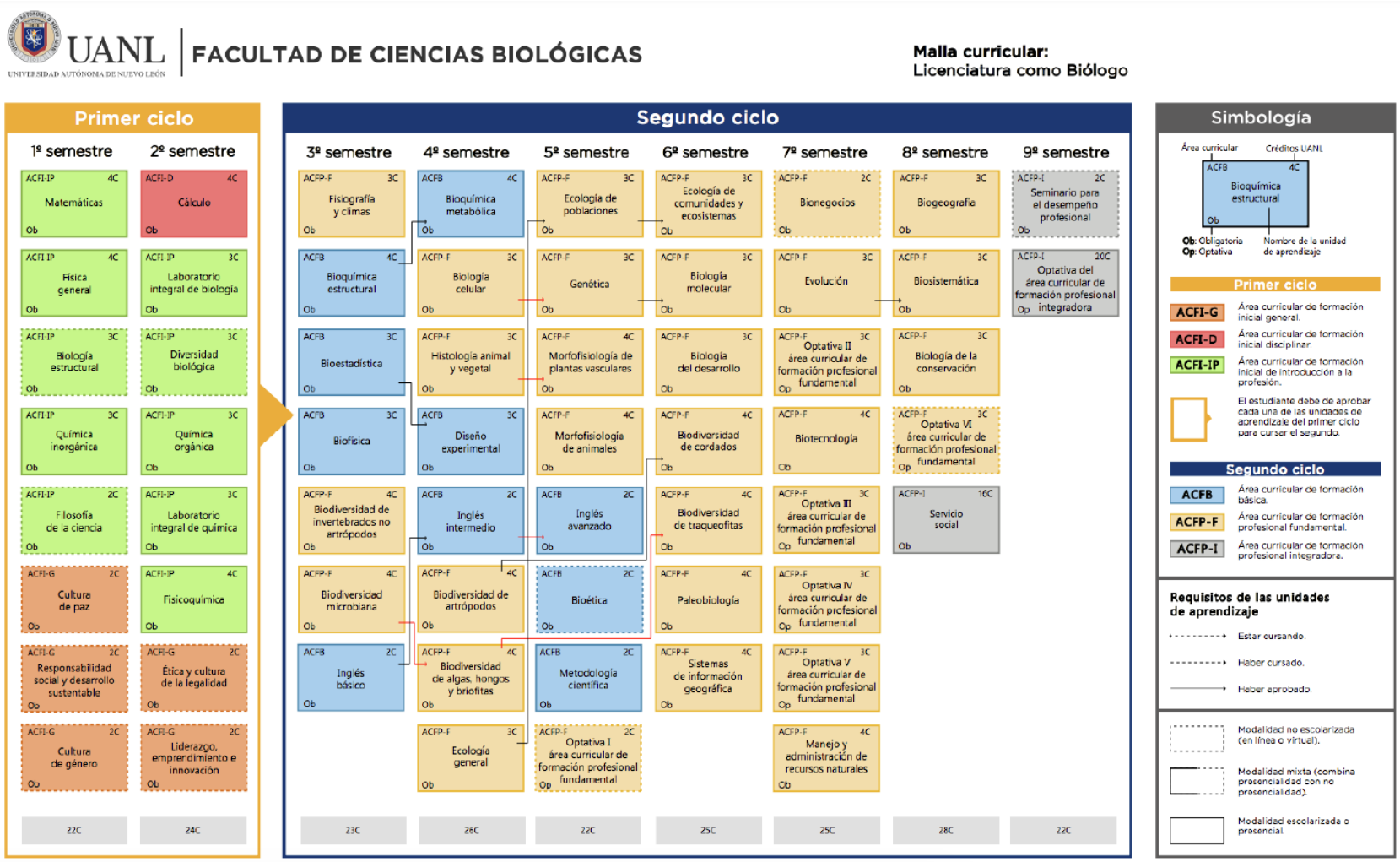
| Model 401 | Model 430 |
|---|---|
| To train competitive professionals capable of designing, evaluating and supervising the appropriate conditions of food handling, storage and processing by<br>• Developing and implementing quality assurance and control systems for the Food Industry.<br>• Applying the scientific method for development of new products considering legal framework, storage, handling and process conditions.<br>• Promoting ethics, social responsibility and respect for nature and sustainable development, to improve conservation and food production processes. | Upon completing the Food Science program, graduates will demonstrate expertise in designing, evaluating, and supervising food handling, storage, and processing, ensuring safety and quality. They will implement effective quality control systems, fostering continuous improvement in food products and processes. Additionally, graduates will excel in innovative product development, formulating food products and supplements that meet specific nutritional needs. They will practice food science with a strong commitment to ethical and responsible standards, adhering to national and international regulations for sustainable and responsible food production |

For the Bachelor's degree programme **Genomic Biotechnology**, the university presents following objectives:

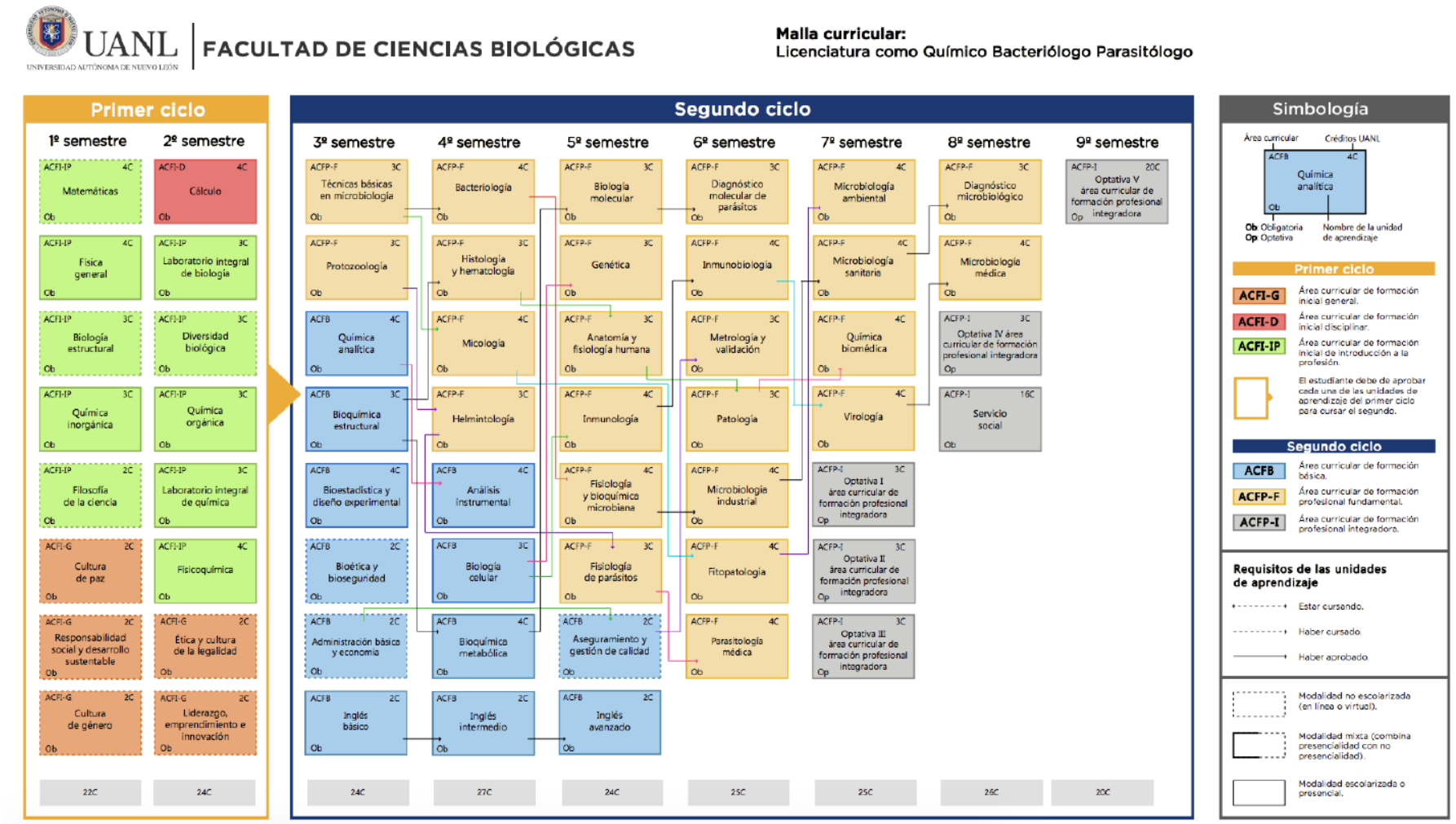
| Model 401 | Model 430 |
|---|---|
| The educational program trains highly qualified professionals to provide to a society services and conditions necessary for a dignifying life, by<br>• Gaining knowledge in the validation and verification of molecular diagnostic procedures for their use in clinical (health), livestock, agricultural, aqua-cultural industrial and environmental sectors.<br>• Developing scientific research in its basic and applied forms, considering innovation and implementation of detection, modification and genomes selection strategies to develop biotechnological products and services.<br>• Promoting sustainable development, respect to nature and multiculturalism. | The Genomic Biotechnology program aims to educate professionals who are not only well-versed in molecular diagnostics, genome manipulation, and biotechnological innovation but also possess a strong sense of ethical and social responsibility. Graduates are equipped to address complex biotechnological challenges creatively and innovatively while recognizing the broader societal implications of their work. They are globally recognized experts who actively contribute to the development of novel biotechnological solutions, making a significant impact on the well-being of society |

The following **curriculum** is presented:

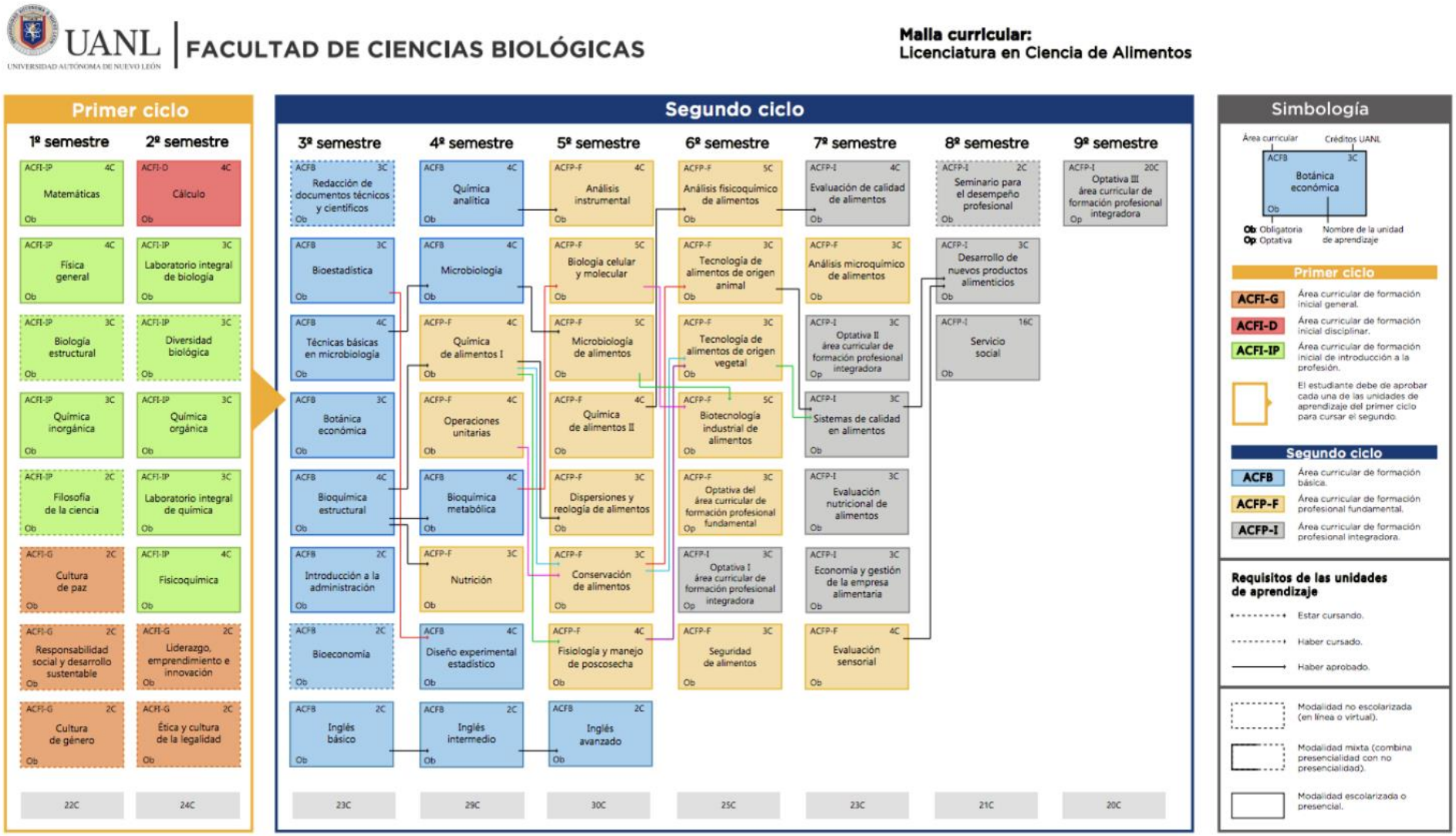
**Bachelor in Biology**



## Bachelor in Chemical Bacteriology and Parasitology



## Bachelor in Food Science



## Bachelor in Genomic Biotechnology