



ASIIN Seal

Accreditation Report

Bachelor's Degree Programme
Clinical Chemistry

Provided by
Universidad Autónoma de Nuevo León

Version: 29 March 2019

Table of Content

A About the Accreditation Process.....	3
B Characteristics of the Degree Programme.....	5
C Peer Report for the ASIIN Seal	6
1. The Degree Programme: Concept, content & implementation	6
2. The degree programme: structures, methods and implementation.....	10
3. Exams: System, concept and organisation.....	14
4. Resources	15
5. Transparency and documentation.....	17
6. Quality management: quality assessment and development	19
D Additional Documents	21
E Comment of the Higher Education Institution (06.02.2019)	22
F Summary: Peer recommendations (11.02.2019)	25
G Comment of the Technical Committees (08.03.2019).....	26
Technical Committee 09- Chemistry (07.03.2019)	26
Technical Committee 10- Life Sciences (06.03.2019)	26
H Decision of the Accreditation Commission (29.03.2019)	28
Appendix: Programme Learning Outcomes and Curricula	30

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
Químico Clínico Biólogo	Clinical Chemistry	ASIIN	none	09, 10
<p>Date of the contract: 20.12.2017</p> <p>Submission of the final version of the self-assessment report: 14.05.2018</p> <p>Date of the onsite visit: 21.-22.11.2018</p> <p>at: Monterrey</p>				
<p>Peer panel:</p> <p>Prof. Thomas Reinheckel, University Freiburg;</p> <p>Prof. Hans Duchstein, University Hamburg;</p> <p>Dr. Hans Kuhn, Altona Diagnostics;</p> <p>Brenda Luna Flores, University of Texas at El Paso;</p>				
<p>Representative of the ASIIN headquarter: Dr. Martin Foerster</p>				
<p>Responsible decision-making committee: Accreditation Commission for Degree Programmes</p>				
<p>Criteria used:</p> <p>European Standards and Guidelines as of 15.05.2015</p> <p>ASIIN General Criteria, as of 10.03.2015</p>				

¹ ASIIN Seal for degree programmes;

² TC: Technical Committee for the following subject areas: TC 09 – Chemistry, TC 10 – Life Sciences.

A About the Accreditation Process

Subject-Specific Criteria of Technical Committee 09 – Chemistry as of 09.12.2011	
Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of 09.12.2011	

B Characteristics of the Degree Programme

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Clinical Chemistry	B.Sc.		6	Full time	-	10 Semester	220 ECTS (2011), 224 (2017)	Once a year in August / 1982

For the Bachelor's degree programme Clinical Chemistry the institution has presented the following profile in the self-assessment report:

„The School of Medicine, with the two degree programs offered, Medicine and Clinical Chemistry, and in accordance to the Institutional Vision (2020 UANL Vision), has always strived to remain at the forefront, both academically and technologically. The School planning process is based on its mission and purpose statements. A wide planning process enables to better answer to changing external and internal needs and to be highly recognized by the academic community.

The graduate of the Bachelor of Clinical Chemistry (QCB) plays an extremely important role in the Biomedical Sciences area, since a graduate student is a professional in the area of health sciences, who has solid scientific preparation and is technically and socially responsible, humanist and globally competent, able to apply knowledge, skills and attitudes either individually or interdisciplinarily in the solution of health problems.

QCB complies with society since it is the only one with its unique characteristics that is offered in northeastern Mexico. Most of the local clinical laboratories privilege the hiring of professionals graduated from this program.

In addition, 90% of our graduates obtain employment in their work field within 3 months after graduation. Many of them state to be well trained to practice their profession or to continue a postgraduate program.“

³ EQF = The European Qualifications Framework for lifelong learning

C Peer Report for the ASIIN Seal⁴

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
- Appendix 1: Competence-Modules-Matrix
- On-site discussions

Preliminary assessment and analysis of the peers:

For the Bachelor's degree programme Clinical Chemistry the HEI presented a detailed description of general learning outcomes in the self-assessment report (SAR). The peers approve that a detailed presentation of learning outcomes is given in the SAR in combination with a learning outcome matrix matching the described learning outcomes with the respective modules of the programme.

First of all the description of the job opportunities of graduates in combination with the learning outcomes underlined that the programme offers broad opportunities and attracts students interested in diverse fields and careers ranging from clinical routine laboratories and blood banks to research academics. Statistics prove that graduates find employment easily in all of these professional areas. Consequently, the learning outcomes target a broad range of skills and competencies but primarily envisage conveying a solid scientific, technical, and humanistic training. Graduates are supposed to know chemical composition and physicochemical composition of the matter in order to determine analytics in biological, environmental and food matrices. Graduates shall further be able to perform physical, chemical or biological procedures, handle chemical and biological materials and validate bioanalytical methods. Moreover, students should learn how to incorporate new analytical

⁴ 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.

methods, interpret analytical results on their own, guarantee the reliability of analytical results and communicate these results in oral and written form to interested audiences. After successful completion of their studies, students may enter one of the various outlined careers or continue their academic research in the form of a Master's degree programme. Besides the subject-specific skills and competencies, the peers gather that graduates shall be able to work in inter- multi- und transdisciplinary teams, being aware of the ethical and legal challenges of the subject and maintaining a responsibility for the social and cultural practices of their native community.

In conclusion, the peers agree that the programme adequately reflects the ASIIN Subject-Specific Criteria as well as the EQF-level 6 for Bachelor programmes.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report
- On-site discussions

Preliminary assessment and analysis of the peers:

During the on-site visit, it was discussed whether the English translation of the Spanish programme title (Químico Clínico Biólogo) with its reference to the biological aspects actually reflects adequately the broad education the programme offers. However, the peers and the programme coordinators agreed that on a global level the denomination Clinical Chemistry is renowned and widely accepted; consequently, the peers see no reason to change the English translation despite the fact that the Spanish original title of the programme is more fitting to the actual content than the translation.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Appendix 2: Curricula Overview
- Appendix 3: Module descriptions
- On-Site discussions

Preliminary assessment and analysis of the peers:

The curriculum of the programme under consideration was reviewed by the panel in order to identify whether the described learning objectives can be achieved with the available modules. Course descriptions as well as a matrix, matching the general learning objectives and the module contents, were also presented for a detailed analysis. Furthermore, the discussions during the on-site visit revealed that the current curriculum had been under constant revision and that recent revisions and modifications had taken place in 2011 and 2017. Due to these recent revisions, students enrolled in the programme are currently studying under slightly different structures. Currently students of both structures are studying the programme in parallel. Both programme variants were discussed and considered by the panel as reflected in the following report.

The students take courses of four different curricular areas: General Studies (with 20 credits), Basic Professional Studies (68 credits) and Professional studies, which is subdivided into “Fundamental” and “Integrative” (with a total of 94 credits). In addition, a space of 22 credits is left for free electives which are not necessarily subject-related and a further 16 credits have to be spent on social services, which nearly all students of the programme spend in subject-related work practice as a non-paid internship.

The first five semesters are predominantly used to convey basic knowledge in the natural sciences, in addition to some electives and general courses. The courses of practical medical implication (Clinical Biochemistry, Blood Bank and Transfusion Medicine, etc.) are only starting in the third year. As will be outlined later with reference to the workload, peers and interviewed students agreed that the quite abrupt implementation of several medical courses in the third year leads to a high diversification of courses and material, although not necessarily to a higher number of credits. In any case, it is noticeable that in the fifth and sixth semester students have to take six different courses while the following semesters consist usually of not more than four courses with a higher workload and credits respectively. In the seventh semester, all students take a research seminar in order to establish fundamentals of scientific research. As a final product of this course, each student has to deliver an individual analytical paper. In continuation, all students have to choose between three different tracks or study opportunities. They can choose to study one semester abroad, which would then be during the ninth semester. In this case, students conduct internships in laboratories in another country; however, this opportunity is rarely made use of. As another option, students can choose the thesis track, meaning that they spend the whole tenth semester dedicated to one project which is eventually presented in form of a written thesis. Such final projects were assessed by the peers and considered to be of excellent quality for a Bachelor’s level. Nevertheless, only a small fraction of the students

chooses to follow this academic path, which would usually pave the way for a further academic career. Most students choose the practice-oriented path. In this case, the students apply for professional internships of several months, which are usually spent in a medical, toxicological or environmental analytics service laboratory located in hospitals, state agencies or companies. There students also receive a salary and have great perspectives to be offered a position after completion of their degree.

The discussion with students, industry partners and all other stakeholder revealed that primarily the economic necessity makes the students choose this path. As most companies require in addition several months of practical experience in order to apply for a job, the internships are considered to be of essential importance in this regard. The peers had intense discussions with all groups about the different tracks and came to conclusion, that they were generally well designed for the Mexican students and the job market. The programme in its concept of a five year Bachelor with a very broad approach attracts both practice-oriented students aiming for a career in a service laboratory as well as students that aspire a career in academics. All of these groups need to be satisfied and the different paths offer an attractive alternative for everyone. Notwithstanding, the peers emphasize that according to the quality understanding of ASIIN and the EQF each Bachelor's degree programme needs to be concluded by a sort of capstone project in which the student documents his ability to work individually on a project, to analyse results and to present the analysis in written form. Currently, however, this is not consistently implemented in the practice-path. The stakeholders agreed, that a solution which could easily be implemented within the internships at the companies could be that the students pursue at least a part of their work time a project which they can summarize and present in a final report outlining their undoubted competencies in scientific research, analysis and presentation. In any case, the peers pointed out that his does not have to have the length or comprehensiveness of the reports presented by those students following the thesis track.

In conclusion, the peers agreed that the curriculum is up to date and adequately set up in order to reach the described learning outcomes of the programmes. Once a capstone project for all students is introduced as mandatory the programme will comply in all aspects with the ASIIN criteria.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report

On-site discussions

Preliminary assessment and analysis of the peers:

At UANL and the School of Medicine in particular, students applying for one of the programmes need to have successfully completed the high school level in Mexico or an equivalent.

In addition, applicants have to take the National Admission Exam (EXANI II), administered by the National Center for Evaluation in Higher Education. This exam is subject-related but not specific, testing the applicants' abilities in mathematical and analytical thinking as well as their language and reading comprehension. Furthermore, the schools can introduce subject-specific elements for the respective programmes. In the case under review, a health test section was introduced, dealing with Chemistry, Biology, writing and English as a foreign language. Based on the results of the test, students are ranked and accepted to the programme. This procedure was considered to be fair and transparent by the peers.

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

After receiving the comments of the HEI the peers welcome the fact that the programme coordinators have taken up their suggestion to continuously increase the scientific work of the students even if they have not chosen the thesis track. They do understand that all students under the new curriculum have to write a scientific paper before entering the final stage of the degree programme. However, they still emphasize the importance of the introduction of a capstone project for all students that could have the form of a written report of the project carried out during the practice phase in the final semester.

They further acknowledge that under the new curriculum an improvement of the workload situation in the fifth semester is already initiated. According to their assessment the transfer of two modules to a later stage of the programme may be a significant modification. In any case, they recommend to monitor the development and to discuss the results during a re-accreditation procedure.

In conclusion, the peers consider the criterion to be partly fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules
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Evidence:

- Self-Assessment Report
- Appendix 2: Curricula Overview
- Appendix 3: Module descriptions
- On-site discussions

Preliminary assessment and analysis of the peers:

The study programme under review is divided into modules, which comprise a sum of teaching and learning. In general, the panel found the structure of the modules to be adequate and manageable. As was outlined before, the modules are split into different categories including compulsory courses, electives, internships and social services. All modules are divided into lecture and lab units as well as time for self-study and exam preparation. Consequently, the peers were convinced that the programme does include sufficient theoretical and practical elements as well as space for individual specializations. Discussion with the industry partners of the programme clearly revealed that the practice implementation is of especially high importance during the programme and that the organization of internships is well organized and coordinated. As most employers in the sector in Mexico require at least one year work experience before hiring personnel, the industry partners, former graduates as well as the current students all approve very much of the many internship opportunities during the final phase of the programme that usually equals the employers' expectations.

The electives offer sufficient space for specializations and were generally approved of by all stakeholders. However, the students emphasized that the selection of electives can be quite chaotic with high demand for few available places in the most popular courses. Since students have to make their choice personally at the faculty this regularly results in high numbers of students camping in front of the building the day before electives can be chosen. The peers would consider it worthwhile to think about alternative selection procedures in order to avoid such circumstances causing stress to all persons involved. Online or written selection may help to improve the process.

Internationalization is highly valued by the programme coordinators and has increased during the past years. Nevertheless, the number of students participating in mobility programmes is limited for different reasons. First of all, the options to study abroad are still reduced in number due to the recognition process. The peers learned that the university holds a good cooperation with the University of Buenos Aires, where students can easily

spend a whole semester and credits of the courses taken are easily recognised at UANL. Other cooperation agreements are about to be signed, most importantly with the University of Bogotá. The peers approve of these developments and support the programme coordinators in their endeavours to open up mobility opportunities for the students. A second reason why students restrain from international mobility is the economic situation. Although the peers understood that a variety of funding support exists, the students did not seem entirely aware of them. Consequently, it might help to improve the communication of such opportunities.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Appendix 2: Curricula Overview
- Appendix 3: Module descriptions
- On-site discussions

Preliminary assessment and analysis of the peers:

The programme's workload is quite evenly distributed throughout the semesters, ranging from 21 to 24 credits per semester. The size of the modules varies significantly according to the assigned workload from 2 to 7 credits. The workload is assessed on a regular basis in the context of the course evaluation and all stakeholders generally agree that the credits indicated meet the reality of the course expectations. However, as was discussed previously, the students remarked that a certain peak in the workload is felt during the fifth and sixth semester. This point was further discussed with programme coordinators and teaching staff and all parties involved agreed that the third study year proves to be a major challenge to the students. Nevertheless, this does not refer in reality to a higher workload in these semesters (both with 23 credits) but is due to the switch from theoretical to clinical courses with very diverse subject matters. In addition, the number of modules in these semesters is quite high compared to other semesters. Therefore, the students are compelled to focus simultaneously on several courses at the same time, which may explain the fact that the workload is felt more intensely than during other semesters. In conclusion, the discussion produced the idea that it could be helpful to change the sequence of modules in the way that not all the clinical courses commence in the same semesters but others could start already in the fourth or fifth semester or at a later stage of the programme.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report
- On-site discussions

Preliminary assessment and analysis of the peers:

It has already been outlined that teaching in the programmes includes theoretical foundations as well as practical work, which was welcomed by the peers. In general, teaching includes lectures, classroom exercises, tutorials, group exercises, laboratory work, as well as group work and individual projects. The special focus of the programme on practice-oriented teaching has been positively emphasized before. In conclusion, the peers clearly saw that the teaching methods applied in the degree programme is diverse, up-to-date and oriented towards the best learning approach of the students.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers had an excellent impression of the offers related to support and assistance of the students at UANL. The students confirmed that the teaching staff is always available to any questions and supports the students in every possible way.

Intensively discussed was the situation that quite a high number of students significantly exceed the regular study duration. During the discussions, the programme coordinators were able to point out that this was caused neither by academic difficulties nor by a lack of support, but mostly due to the difficult financial situation of many students. Detailed analyses of the study duration have been carried out, supporting this interpretation. The peers learned that as a basic problem many students start to study the degree programme but stop at a certain time because they have to work for living besides their studies. This would in itself not be a major problem, but the programme does not allow the students to take only a few of the semester modules; either students take all the courses during one semester or they take none. This results in many students not gaining any credits at all. Although

the peers do understand that the programme in itself follows a structure and logic where most courses require the finalization of previous modules, it could be helpful to introduce a greater flexibility in the curriculum allowing students to take only a few courses if necessary. Otherwise, the creation of an explicit part-time study degree could also better suit the living circumstances of many students and lead to more success in the regular study duration. Furthermore, as was already pointed out with the international mobility, scholarships and other financial support option could be even better communicated to the students in need.

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

From the comments of the HEI the peers understand that a development of the international cooperation and mobility is the goal of the programme as well as the whole University. It is envisaged that about 5% of the students shall participate in such mobility programmes. This ambition is very much supported by the peers who further support the endeavour to expand the programme's international partnership agreements.

In addition, the peers understand that introducing a part-time study option is legally and technically difficult in Mexico and in the respective programme. They appreciate that the programme coordinators are aware of the challenges some of the students face due to personal and economic difficulties and suggest to continuously take measures in facilitating the study environment for those students in need of support.

In conclusion, the peers consider the criterion to be largely fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation
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Evidence:

- Self-Assessment Report
- Appendix 3: Module descriptions
- Appendix 9: Exam schedules
- Audit discussions

Preliminary assessment and analysis of the peers:

Each course-content in the reviewed study programme is reflected in exams that are taken during a two- to three weeks examination period at the end of the semester. Information regarding the examination form and timing is provided at the beginning of the semester and confirmed by the students to be transparent and reliable. In case exams are failed students have up to six re-takes.

The peers checked a variety of exams and agreed that they generally represented an adequate level of knowledge as required by the EQF-Level 6. However, as has been outlined already, the programme still lacks a capstone project for those students that do not choose the thesis track. Options how to include a written capstone project into the internship in the final semester have been discussed under criterion 1.3. Currently, all students do prepare a short written report during the Research Seminar in the seventh semester. The peers checked some of these reports considered them to be of good quality. Hence, they did not doubt the academic qualification of the students even if they chose the internship track. This was further confirmed by the results of the thesis track that were scrutinized and proved to be of excellent quality.

In conclusion, the peers saw that all relevant examination regulations are in place and well communicated in a transparent way. The forms of exams are oriented toward the envisaged learning outcomes of the respective courses and the workload is distributed in an acceptable way.

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

The peers considers this criterion to be fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Appendix 10: List of Professors
- Appendix 11: Resumed CV for each professor
- Appendix 12: List of some research projects of the last three years.

- Audit discussions

Preliminary assessment and analysis of the peers:

The analysis of the provided information of the staff members as well as the active discussions with staff members during the on-site-visit clearly proved to the peers that there is sufficient staff available for the implementation of the programme and that the qualification of the teaching staff is more than adequate to convey the envisaged learning outcomes.

Criterion 4.2 Staff development
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Evidence:

- Self-Assessment Report
- Appendix 14: List of professorial academic development activities
- Audit discussions

Preliminary assessment and analysis of the peers:

From the discussion with the teaching staff the peers learned that the University of Nuevo León has put a lot of emphasis during the past years on the professional training and development of its staff members. The QCB department offers a special pedagogical updating programme that is open to all staff members and at a university level a Teacher Updating Programme has been installed, focussing on the reflection of didactic processes, the exchange of teaching experiences and the systematization of teaching practice.

In order to encourage professional development of the staff, certain incentives have been defined by the University that economically reward research performance, academic development, students' tutoring, dissemination of knowledge and awards. In addition, staff members can avail of financial support offers for their doctoral and post-doctoral studies and apply for sabbatical leaves under certain requirements. In conclusion, the peers were convinced that the development offers for staff members are adequate and contribute to a constant improvement of the learning and teaching environment.

Criterion 4.3 Funds and equipment
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Evidence:

- Self-Assessment Report

- Audit discussions
- On-site-visit

Preliminary assessment and analysis of the peers:

During the on-site visit, the peers inspected the research and teaching facilities of the programmes and considered the available equipment to be of adequate standards. Teachers and students were quite content with the availability of the equipment and the library and the peers agreed that the facilities provide everything required for the successful implementation of the programme.

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

The peers consider this criterion to be fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Appendix 3: Module descriptions
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers appreciated the module descriptions presented beforehand with the self-assessment report. For all subject-specific courses, descriptions were made available and are accessible to the students. They give full information about the courses, contents, learning outcomes, teaching method, workload, credit points, admission and examination requirements and recommended literature. The peers only recommended that the type of the examination could be made more explicit in the description where possible in order to ensure greater transparency.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Appendix 17: Transcript of Records, Degree Certificate

Preliminary assessment and analysis of the peers:

At graduation, all students are provided with a diploma and an additional document named Kardex, outlining all courses taken and the respective grading. However, students do not receive a kind of Diploma Supplement offering information about the degree programme, the individual study performance, the selected courses, a relative grade of the student and an overview over the Mexican system of higher education. In order to fully comply with the ASIIN regulations and to increase the international job opportunities of the students the peers recommend to produce such a document for all graduates.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Report
- On-site discussions

Preliminary assessment and analysis of the peers:

From the documents provided and the discussions during the on-site visit, the peers learned that the UANL follows a policy of transparent and open rules and regulations. All required rules and regulations are made accessible to students at any time. The discussion with the students confirmed that they felt well informed about regulations and comfortable about the access to any information about their degree programme.

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

In the comments of the HEI it is announced that the modules descriptions will be revised and offer more information about the types of examinations. This initiative is appreciated by the peers. They are further informed in more detail about the transcript each student is awarded at graduation offering information about the individual student performance and the programme attended. They agree that this includes most of the information required but still recommend to adapt the internationally accustomed template for a Diploma Supplement including a relative grade of the student and an overview over the Mexican system of higher education. In conclusion, the peers consider this criterion to be largely fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Appendix 20: Employers Survey
- Appendix 21: Student Progression Statistic
- Audit discussions

Preliminary assessment and analysis of the peers:

From the assessed documents as well as the information provided during the on-site visit, the peers can confirm that the UANL in general as well as the Faculty of Medicine in particular has an advanced quality assurance system in place. Annual evaluations of all courses and teaching staff are carried out and the results of the course evaluations are analysed by a committee for curriculum development. In addition to the survey results, the teaching staff has to provide samples of all student tasks to the committee to allow for a detailed analysis of the achievement of course learning outcomes. The result of the committee assessment is eventually sent to the teacher as well as the head of the respective department. If the student survey reveals any critical points the teaching staff is contacted and respective measures are initiated up to the dismissal of staff members in case of repetitive bad evaluation results. However, the peers realized that the results of the surveys and the measures initiated by the committee are not communicated to the students. They have to rely on the assessment of the committee and the willingness of the teacher to adapt to the recommendations given by the committee in case of any issues. Therefore, they do recommend to improve the transparency of the curriculum improvement process and to close the quality management circle insofar as survey results should be discussed by the teachers with the respective class during the semester. This will increase the students' trust in the quality management processes and increase the willingness to actively contribute to them.

Despite the missing link described above, the peers gained the impression of a well-established quality assurance system where all stakeholder participate in the development of the programme. In addition to the student survey, the programme sustains an intense follow-up of the programme graduates and keeps in active contact with more than 600 grad-

uates. In conclusion, it became apparent that all stakeholders thought the quality management process to be effective and that an open, critical communication about the programme was always possible and requested by the programme officials.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The peers agree that a working system of quality management is in place at UANL and in the programme of Clinical Chemistry. They nevertheless recommend to inform the students more transparently about the outcome of course evaluations and therefore to have them participate more actively in the quality assurance process. In conclusion, the peers consider this criterion to be largely fulfilled.

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:

No additional documents needed

E Comment of the Higher Education Institution (06.02.2019)

Regarding criterion 1

We think that what is pointed out in 1.3 about the possibility that all of the students carry out a research project during their major is an area to be improved. Having this in mind, the 2017 Degree program includes a compulsory Module (Learning Unit) called Research Seminar 1, in which students have to elaborate a theoretical Research Protocol. Those, who opt for the research area, will take the elective Module (Learning Unit) called Research Seminar 2, Social Service oriented to research, and will end up with a Thesis. The rest of the students will be asked, whether in the Social Service (ninth semester) or in their Professional Practice (tenth semester), to develop a project related to the area of Laboratory/Company in which they carry out their practice. Due to the fact that the evaluation system of these Modules (Learning Units) depends on the General Regulations of the UANL, these will count as two credit points in the tenth semester (at the present time, these credit points are covered as courses from Continuing Education). This will be effective for those students who start their ninth semester in August 2019

Regarding criterion 2

For a while, we have been concerned about increasing the number of students in international exchange programs. The goal of the UANL, declared in its development plan, is that at least 5% of the registered students achieve such an objective. In our case, this would represent 5 to 6 students a year. We have had enough economic resources to offer scholarships, and we have promoted these programs widely, but students, due to personal and family situations do not consider this option. We will try to increase the number of agreements and improve their promotion. In this case, the promotion will be directed to students who are in the first semesters as well as to their parents, and students who have been in this exchange programs will be invited so that they can share their personal experience. We compromise to carry out our first meeting in the semester February-July 2019 and to reach the desired number in the semester August-December 2020.

With regard to the difficulty pointed out in the fifth semester in the 2011 Degree program, one of the Modules (Learning Units) of that program (from which complaints were received by peers), Toxicology and Legal Chemistry was moved to a higher semester in the 2017 Degree program. In this way, we consider that the workload will be lower. In order to keep continuity and order, it is not possible to place the fifth semester Modules (Learning Units) before, since some of them require Biochemistry (Hematology, Molecular Biology, Genetics, Immunology) or Applied Analytical Chemistry (Instrumental Analysis) and Organic Techniques (Organic Analysis) as a basis to be carried

out. Nevertheless, the first generation that started the 2017 Degree program will take the fifth semester in August 2019. For this reason, we will have periodic meetings in advance with the professors involved in order to reach agreements about the workload in each of the modules.

With regard to the curricular flexibility about taking less Modules (Learning Units) or partial semesters, it would not be convenient because in our program, not all of the Modules (Learning Units) are offered each semester. Most of the Modules (LU) are theoretical and practical, and the professors assigned to these Modules (LU) as well as the laboratories where the practice is carried out would be already taken by the Modules (LU) assigned to a semester in particular. Thus, part-time students would not be able to take some of these Modules (LU) in the schedule assigned. This would delay the students in terms of completing their Degree program and it would be against Article 16 of the UANL Regulation related to Admission and Permanence that mentions the minimum of credit points to take per semester; besides, this will impact the quality indicators of the program. However, the Academic Committee of the Bachelor Degree Program in Clinical Chemistry (QCB), has the authority to revise specific cases in which students need, under justified circumstances, to take less credit points in a semester or to take credit points in advance, and if it is needed, scholarships or other type or incentives can be offered.

Regarding criterion 3

It was already answered in 1

Regarding criterion 5

About the specifications of the exams (duration and type), in the following months, professors in charge of each Module will be asked to make an addition in the analytical version, specifically a rubric for each exam. Students will be informed about this through the digital platform during the first day of classes. This will start in the semester August-December 2019.

During the graduation ceremony, all of the students receive a diploma and a kardex (transcript) in which all the completed Modules (Learning Units), both compulsory and elective, are described. Also, the grades that show individual performance are included. Besides that, during the last semester, students take the National Exit Exam for Bachelor Programs (EGEL-Quicli) that evaluates the extent to which educational objectives were achieved in the area of Clinical Chemistry on individual basis. Some students can obtain national recognition if they have outstanding academic performance. In addition to that, our institution gives an award for high academic performance or research at the end of each generation under the regulations established for our University (a letter is included).

Regarding criterion 6

The teaching evaluation consists of a survey, conducted by UANL. Its main objective is to improve the quality indicators of the institution, and it is only available through the SIASE module of each professor. However, the QCB program conducts another survey that evaluates not only the professor's performance but also the system as a whole (see page 21 Self Study Report and Appendix 5). These surveys are managed by the Curriculum Committee so that feedback is provided to the professor and to the Head of the Department in order to carry out future actions. Each professor is asked to consider if there are areas to be improved from the aspects evaluated in the survey. Also, the Head of the Department keeps track of the professor's performance during the following term in which the Module (UA) is offered, in order to verify if the improvement was effective. On the other hand, a letter of appreciation is sent to the professor that does not receive observations in the survey, with the objective of encouraging him to keep the grade obtained

F Summary: Peer recommendations (11.02.2019)

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Clinical Chemistry	With requirements for one year		30.09.2024

Requirements

- A 1. (ASIIN 1.3) A Capstone Project in form of a written documentation of an individual project in the final internship needs to be introduced.

Recommendations

- E 1. (ASIIN 1.3; 2.2) It is recommended to improve the distribution of workload in the third study year.
- E 2. (ASIIN 3) It is recommended to make the type of examination more transparent in the module description.
- E 3. (ASIIN 2.1) It is recommended to improve the organization of the election of optative courses.
- E 4. (ASIIN 2.1) It is recommended to further develop the international mobility offers following the example of the agreement with the University of Buenos Aires in order to ensure recognition of credits.
- E 5. (ASIIN 5.2) It is recommended to issue not only the Kardex but a Diploma Supplement in Spanish and English language to all graduates offering information about the degree programme, the individual study performance, the selected courses, a relative grade of the student and an overview over the Mexican system of higher education.
- E 6. (ASIIN 6) It is recommended to inform the students about the outcome of the course evaluations on a regular basis.

G Comment of the Technical Committees (08.03.2019)

Technical Committee 09- Chemistry (07.03.2019)

Assessment and analysis

The Technical Committee discusses the procedure and generally agrees with the assessment of the peers. The major issue detected is the common problem of a missing capstone project that has been addressed adequately.

The Technical Committee 09 – Chemistry recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Clinical Chemistry	With requirements for one year	-	30.09.2024

Technical Committee 10- Life Sciences (06.03.2019)

Assessment and analysis

The Technical Committee discusses the procedure and largely agrees with the peers. However, recommendations 1 and 5 are considered to be major issues that should be addressed in the form of requirements.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Clinical Chemistry	With requirements for one year	-	30.09.2024

Requirements

- A 1. (ASIIN 1.3) A Capstone Project in form of a written documentation of an individual project in the final internship needs to be introduced.
- A 2. (ASIIN 1.3; 2.2) Improve the workload distribution in the third study year.

- A 3. (ASIIN 5.2) Issue not only the Kardex but a Diploma Supplement in Spanish and English language to all graduates offering information about the degree programme, the individual study performance, the selected courses, a relative grade of the student and an overview over the Mexican system of higher education.

Recommendations

- ~~E 1. (ASIIN 1.3; 2.2) It is recommended to improve the distribution of workload in the third study year.~~
- E 2. (ASIIN 3) It is recommended to make the type of examination more transparent in the module description.
- E 3. (ASIIN 2.1) It is recommended to improve the organization of the election of optative courses.
- E 4. (ASIIN 2.1) It is recommended to further develop the international mobility offers following the example of the agreement with the University of Buenos Aires in order to ensure recognition of credits.
- ~~E 5. (ASIIN 5.2) It is recommended to issue not only the Kardex but a Diploma Supplement in Spanish and English language to all graduates offering information about the degree programme, the individual study performance, the selected courses, a relative grade of the student and an overview over the Mexican system of higher education.~~
- E 6. (ASIIN 6) It is recommended to inform the students about the outcome of the course evaluations on a regular basis.

H Decision of the Accreditation Commission (29.03.2019)

Assessment and analysis

The Committee discusses the procedure and largely agrees with the assessment of the peers. It is recommended to consider a revision of the organization of modules in the third study year but not to require any such modifications within one year. On the other hand, a revision of the Diploma Supplement is deemed to be necessary as proposed by the Technical Committee 10.

The Accreditation Commission for Degree Programmes decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Clinical Chemistry	With requirements for one year		30.09.2024

Requirements

- A 1. (ASIIN 1.3) A Capstone Project in form of a written documentation of an individual project in the final internship needs to be introduced.
- A 2. (ASIIN 5.2) Issue not only the Kardex but a Diploma Supplement in Spanish and English language to all graduates offering information about the degree programme, the individual study performance, the selected courses, a relative grade of the student and an overview over the Mexican system of higher education.

Recommendations

- E 1. (ASIIN 1.3; 2.2) It is recommended to improve the course distribution in the third study year.
- E 2. (ASIIN 3) It is recommended to make the type of examination more transparent in the module description.
- E 3. (ASIIN 2.1) It is recommended to improve the organization of the evelectives.

- E 4. (ASIIN 2.1) It is recommended to further develop the international mobility offers following the example of the agreement with the University of Buenos Aires in order to ensure recognition of credits.
- E 5. (ASIIN 6) It is recommended to inform the students about the outcome of the course evaluations on a regular basis.

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Clinical Chemistry:

“Instrumental skills:

1. Apply autonomous learning strategies in the different levels and fields of knowledge that allow them make appropriate and relevant decisions in the personal, academic and professional fields.
2. Use the logical, formal, mathematical, iconic, verbal and non-verbal languages according to their stage of life, in order to understand, interpret and express ideas, feelings, theories and streams of thinking with an ecumenical focus.
3. Use the information and communication technologies as access tools to information and its transformation in knowledge, as well as for learning and collaborative work with cutting-edge techniques that allow its constructive participation in society.
4. Dominate their native language in oral and written form with correctness, relevancy, opportunity and ethics adapting its message to the situation or context, in order to transmit of ideas and scientific findings.
5. Employ logical, critical, creative and proactive thinking to analyze natural and social phenomena that let them make relevant decisions in its area of influence with social responsibility.
6. Use a second language, English in particular, with clarity and correctness to communicate in common, academic, professional and scientific contexts.
7. Develop inter, multi and transdisciplinary academic and professional proposals according to the best global practices to promote and consolidate the collaborative work.
8. Use methods and techniques of traditional and cutting-edge research for the development of their academic work, the practice of their profession and the generation of knowledge.

Personal and social interaction skills

9. Maintain an attitude of commitment and respect towards the diversity of social and cultural practices that reaffirm the principle of integration in the local, national and international context with the purpose of promoting environments of peaceful coexistence.

10. Intervene in front of the challenges of contemporary society at the local and global level with a critical attitude and human, academic and professional commitment to help consolidate the general wellness and sustainable development.

11. Practice the values promoted by the UANL: truth, equality, honesty, liberty, solidarity, respect for life and anyone's, peace, respect for nature, integrity, ethics behavior and justice, within their personal and professional environment in order to make a sustainable society.

Integrative skills

12. Make innovative proposals based on the holistic understanding of reality to help overcome the challenges of the interdependent global environment.

13. Take the lead according to social and professional needs to promote relevant social change.

14. Resolve personal and social conflicts in accordance with specific techniques in the academic field and their profession for the proper decision making.

15. Achieve the adaptability required in uncertain professional and social environments of our time to improve living conditions.

Specific skills

1. Solve problems by applying knowledge of the chemical composition of the matter as well as its physicochemical properties to determine analytes in biological, environmental and food matrices.
2. Perform physical, chemical and / or biological procedures in the collection, handling, storage and analysis of samples to contribute to a clinical, toxicological, chemical, food, forensic and environmental diagnosis reliable.
3. Handle chemical and biological materials according to the Mexican and / or international official norms to ensure its correct use and disposition to preserve the health and the environment
4. Validate bioanalytical methods under established performance criteria that allow reliability of the results obtained in chemical-biological samples

0 Appendix: Programme Learning Outcomes and Curricula

5. Incorporate new analytical methodology that contributes to the functional, economic and / or environmental improvement of laboratory processes to respond to needs in health areas.
6. Interpret the results of analysis on the basis of established criteria that allow timely and relevant decision in clinical, toxicological, chemical, food, forensic and environmental diagnosis
7. Guarantee the reliability of the analytical results obtained by applying quality control guidelines as established by the laboratory policies for correct decision making
8. Ensure the necessary resources by applying quality management systems for the proper operation and continuous improvement of laboratories.”

The following **curriculum** is presented:

