



**ASIIN Seal**

## **Accreditation Report**

**Bachelor's Degree Programmes**

***Biology***

***Chemistry***

**(Male Campus)**

Provided by

**University of Hail, Saudi Arabia**

Version: March 20<sup>th</sup> 2020

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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 <sup>1</sup>	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) <sup>2</sup>
بكالوريوس العلوم في علم الأحياء	Bachelor of Science in Biology	ASIIN	-	10
بكالوريوس العلوم في الكيمياء	Bachelor of Science in Chemistry	ASIIN	-	09
<b>Date of the contract:</b> 28.11.2017 <b>Submission of the final version of the self-assessment report:</b> 10.01.2018 <b>Date of the onsite visit:</b> 6.11. – 8.11.2018 <b>at:</b> Hail (male campus), Saudi Arabia				
<b>Peer panel:</b> Prof. Dr. Tilman Achstetter, University of Applied Sciences Bremen Prof. Dr. Martin Jäger, University of Applied Sciences Niederrhein Prof. Dr. Meinhard Simon, University Oldenburg				
<b>Representative of the ASIIN headquarter:</b> Rainer Arnold				
<b>Responsible decision-making committee:</b> Accreditation Commission for Degree Programmes				
<b>Criteria used:</b> European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014				

<sup>1</sup> ASIIN Seal for degree programmes;

<sup>2</sup> TC: Technical Committee for the following subject areas: TC 09 – Chemistry; TC 10 – Life Sciences

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	
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## B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF <sup>3</sup>	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Bachelor of Science in Biology	Bachelor of Science in Biology	-	6	Full time	no	8 Semester	242.4 ECTS/132 CH (KSA)	Fall Semester / 2013
Bachelor of Science in Chemistry	Bachelor of Science in Chemistry	-	6	Full time	no	8 Semester	241.2 ECTS/132 CH (KSA)	Fall Semester / 2013

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<sup>3</sup> EQF = The European Qualifications Framework for lifelong learning

For the Bachelor's degree programme Biology the University of Hail has presented the following profile in the Self-Assessment Report:

"The study of biology serves as basic information for a wide range of disciplines such as medicine, pharmacology, veterinary medicine, dental medicine and agriculture. Biology as a part of the basic science sector given under a number of specializations such as: Entomology, Botany and Zoology. In addition to, the sub-disciplines within this area that focus on particular groups of organisms such as Microbiology and other interdisciplinary specializations as Biotechnology. There are various job opportunities for biologist as researcher in academic, educational and environmental institutions. Other work opportunities are in drug, biotechnology, food, agricultural, chemical, biological supplies, forensic sectors and others. It is important for leaders of society, whether in government, industry, business or education, to appreciate this and for an informed citizen to understand the scope and limitations of biological knowledge and techniques. Only then can we face the challenging social, ethical and legal problems posed by new developments, such as stem cell cloning, gene patenting and gene therapy, while working to maintain biodiversity and a stable and sustainable environment.

Biological sciences offer understanding of the biological processes in the living organisms on molecular, cellular, tissues, systems, and organismal levels. Graduates of biological sciences are the main society calibers of research scientists, biotechnological entrepreneurs, educators, biomedical and allied health professionals."

For the Bachelor's degree programme Chemistry the University of Hail has presented the following profile in the Self-Assessment Report:

**"Vision:**

Pioneering and distinction in chemistry teaching and research: locally and regionally to serve the community

**Mission:**

The Department of Chemistry, Faculty of Science, University of Hail is committed to preparing graduates with scientific distinction in the field of chemistry and its applications, who are capable of competing at the local and regional levels and producing distinctive scientific research to serve the community. This is to be achieved through training and teaching programmes, distinguished scientific research, and the optimal implementation of modern technology and distinguished qualified human resources

**Goals:**

## **B Characteristics of the Degree Programmes**

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1. Preparing outstanding graduates in chemistry through a distinctive educational plan based on the national framework for quality.
2. Supporting and developing scientific research to achieve international standards through an integrative research plan and high-tech equipment.
3. Spreading the culture of chemistry in the community and educating the community members in the importance of chemistry and its role in the various fields of life. This is to be achieved through organizing scientific conferences and forums.
4. Providing applied scientific consultations in the field of chemistry for the public and private sectors.”

## C Peer Report for the ASIIN Seal

### 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
- Objective-Module Matrices
- Study plans
- Module descriptions
- The undergraduate study and examinations regulation & the UOH rules for their implementation
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>
- Webpage Department of Biology:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Biology/Pages/Program.aspx>
- Webpage Department of Chemistry:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Chemistry/ACAD-PROG/Pages/default.aspx>
- Discussions during the audit

#### **Preliminary assessment and analysis of the peers:**

The university informs about the vision, objectives and learning outcomes of the degree programmes at several institutional levels (university, college, department). Thus, the provided documentation is well suited to assess whether a respective set of learning outcomes does adequately reflect a given standard.

The auditors refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences and the SSC of the Technical Committee Chemistry as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Biology and Chem-



istry as defined by the University of Hail (UOH) correspond with the competences as outlined by the SSC. They come to the following conclusions:

Graduates of the Bachelor's degree programme Biology should understand the basic biological processes and be capable of applying the scientific and technological methods of the biological sciences. In addition, graduates should acquire relevant scientific knowledge in the different biological areas such as botany, zoology, biochemistry, biostatistics, molecular biology, biotechnology, and related natural sciences (chemistry, physics). They learn to work in a team and to carry out practical work in a laboratory and in the field. The purpose is to educate biologists to understand and solve scientific problems in biological laboratories or private companies. Graduates of the Biology programme mainly aim at finding a suitable occupation in the public administration (e.g. as school-teachers), in biotechnology, food, agricultural, or chemical companies, as well as in environmental and biomedical areas.

With respect to the Bachelor's degree programme Chemistry, the intended learning outcomes include gaining expertise in natural sciences in general and in chemistry in particular: organic, inorganic, physical, analytical, and theoretical chemistry. In addition, graduates should understand major chemical concepts and be able to use laboratory techniques. Graduates should also be trained in experimental methods in chemistry, be aware of chemical hazards and how to prevent risks by applying appropriate safety tools, and have a sound knowledge of safety standards for preventing environmental problems. Finally, the graduates of both programmes should be capable of conducting scientific work.

Graduates of the Bachelor's degree programme Chemistry have several job opportunities; they can work in the chemical, pharmaceutical, mining or petrochemical industry, at universities as well as in research institutes or in the public administration.

The information provided in the Self-Assessment Report and the supplementary information received from the programme coordinators, clearly shows that discipline-related skills are accurately outlined, and competences are defined for the Bachelor's level agreeing with the respective Subject-Specific Criteria (SSC) of the ASIIN Technical Committees. The auditors are convinced that the intended qualification profiles of the degree programmes under review allow the students to find positions reflecting their qualifications. The degree programmes are in many ways designed to meet the particular needs of the local and the national labour market. The auditors consider objectives and learning outcomes of the degree programmes appropriate for attaining the intended level of academic qualification. The intended learning outcomes also adequately correspond with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences respectively of the Technical Committee 09 – Chemistry.

The Bachelor's degree programmes Biology and Chemistry furthermore fulfill the qualification prerequisites as specified in the European Qualifications Framework level 6 (Bachelor).

The auditors acknowledge that the degree programmes under review are mostly taught in English. The curriculum, however, covers English only in two courses, having to suffice for the students to receive the necessary linguistic background in order to learn a scientific discipline in a foreign language. The respective learning outcomes, however, do not include any reference to international competitiveness of graduates or the ability to communicate in English as the internationally accepted scientific language. When talking to the students during the on-site visit, the peers noticed that the students had limited communication skills in English. The teachers confirm that due to most students' lack of sufficient English language skills, Arabic was also spoken in class. The University is aware of this deficiency and has established methods aimed at increasing the English skills of its students. For example, the preparatory year now offers mandatory English classes for the students. In addition, the local schools have reacted to the insufficient level of English and have begun to introduce high school students earlier to the English language so that by the time they enter UOH, their English will prove adequate.

During the discussion with the programme coordinators, the auditors learn that graduates wanting to pursue a teaching career in order to become a high school teacher have to enroll in a supplementary study programme, usually requiring an additional year of studies. The auditors are informed by employers that becoming a high school teacher is one of the major job perspectives for graduates. Alternatives to a career in schools are jobs in the private sector, such as in medium-sized companies and in industry, for instance the petroleum industry. These alternative job perspectives are gaining in importance.

The auditors are pleased to note that UOH regularly meets with relevant stakeholders for identifying possible deviations between the qualification profile of the graduates and the needs of the companies. Especially with regards to the ""KSA 2020"" – a plan by the state government to bring industries to rather remote regions such as Hail – the peers see that the university and the industry strive to create more employment opportunity for graduates that remain in Hail. Based on this information, the auditors conclude that objectives and learning outcomes of both degree programmes are adequately and regularly reviewed by the programme coordinators and further developed, if required.

<b>Criterion 1.2 Name of the degree programme</b>
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**Evidence:**

- Self-Assessment Report
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>
- Webpage Department of Biology:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Biology/Pages/Program.aspx>
- Webpage Department of Chemistry:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Chemistry/ACAD-PROG/Pages/default.aspx>

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

The audit team considers both degree programme titles appropriate for reflecting the intended aims and learning outcomes, and the main languages the courses are taught in (Arabic and English). All information about the degree programmes is available from sources accessible to the students in Arabic and English.

<b>Criterion 1.3 Curriculum</b>
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**Evidence:**

- Self-Assessment Report
- Study plans
- Module descriptions
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>
- Webpage Department of Biology:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Biology/Pages/Program.aspx>
- Webpage Department of Chemistry:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Chemistry/ACAD-PROG/Pages/default.aspx>

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

UOH has developed and included in the Self-Assessment Report a comprehensive matrix that shows, which intended learning outcome should be achieved by which course. This matrix makes apparent that the objectives of the Bachelor's degree programmes Biology

and Chemistry are substantiated by the courses, and it is clear to the peers, which knowledge, skills and competences students will acquire in each course. Additionally, Summer Training courses are offered as an extracurricular activity for those students who lack knowledge in certain important areas or are behind on their studies. However, due to the limited amount of places in the Summer Training, only a certain number of student can benefit from it.

In summary, the peers see that the curricula allow the students to achieve the intended learning outcomes.

<b>Criterion 1.4 Admission requirements</b>
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**Evidence:**

- Self-Assessment Report
- The undergraduate study and examinations regulation & the UOH rules for their implementation
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>
- Webpage Department of Biology:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Biology/Pages/Program.aspx>
- Webpage Department of Chemistry:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Chemistry/ACAD-PROG/Pages/default.aspx>

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

Admission requirements for both degree programmes are based on two elements: the final grade of the high school degree and passing of the General Aptitude Test (GAT) at National Center for Assessment in Higher Education.

The results are combined and weighted against a minimum threshold percentage that is defined annually for each programme. Combined results above the minimum threshold grant access to the programme, results below threshold not.

As specified on the university's regulations the admission requirements at UOH are:

- a. He should have the secondary school certificate, or its equivalent from inside or outside the Kingdom of Saudi Arabia.

- b. He should have obtained the secondary school certificate in a period of less than 5 years prior to the date of application. However, the University Council may waive this condition if the applicant has a satisfactory explanation.
- c. He must have a record of good conduct.
- d. He must successfully pass any examination or personal interviews as determined by the University Council.
- e. He must be physically fit and healthy.
- f. He must obtain the approval of his employer, if he is an employee of any government or private agency.
- g. He must satisfy any other conditions the University Council may deem necessary at the time of application.

Before starting their undergraduate studies, all newly admitted students are required to complete successfully the preparatory year with classes in English, Mathematics, Computer Sciences, Study Skills, and Physical Education.

The grades earned by the student in the preparatory year are recorded. However, these grades are not considered in the calculation of the cumulative GPA for the undergraduate programmes. After successfully passing the preparatory year, students can choose their Major (Biology, Chemistry, Physics, or Mathematics) at the College of Science according to their GPA. After successfully passing the preparatory year, students can choose their Major (Biology, Chemistry, Physics, or Mathematics) at the College of Science according to their GPA. This semester, around 50 students were admitted to the programmes after completing the preparatory year. The peers liked that nearly all of the student admitted were capable to finish their studies after having passed the preparatory year.

The auditors consider the chosen requirements suitable for ensuring subject-specific qualification of graduates from high school for being admitted to higher education at UOH.

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

The university does not comment on this criterion in its statement.

The peers consider the criterion to be fulfilled.

## 2. The degree programme: structures, methods and implementation

<b>Criterion 2.1 Structure and modules</b>
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### **Evidence:**

- Self-Assessment Report
- Study plans
- Module descriptions
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>
- Webpage Department of Biology:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Biology/Pages/Program.aspx>
- Webpage Department of Chemistry:  
<http://www.uoh.edu.sa/en/Subgates/Faculties/CS/Departments/Chemistry/ACAD-PROG/Pages/default.aspx>
- Discussions during the audit

### **Preliminary assessment and analysis of the peers:**

The curricula of the Bachelor's degree programmes Biology and Chemistry are, according to the opinion of the auditors, logically structured and suited for achieving the majority of intended learning outcomes. Minor reservations to this general statement refer to the scientific background and depths of the Bachelor's thesis as outlined under criterion 3.

The Bachelor's degree programmes Biology and Chemistry are offered by the College of Science of UOH.

One Saudi Arabian Credit Hour (CH) is awarded for one 50- minute lecture or two or three 50-minute laboratory or tutorial sessions over a 15-week long semester.

This only includes contact hours, but the students' self-study hours are also taken into consideration. Hence, there is a conversion rate between Saudi-Arabian Credit Hours and the European Credit Point Transfer System (ECTS). This topic will be discussed in more detail under criterion 2.2.

The curriculum of both degree programmes under review is divided into four sections and consists of 132 CH. The first section comprises the University Compulsory Requirements where the students have to cover 15 CH during the first four semesters: Arabic Language

Skills, Arabic Composition, English Language, Introduction to Islamic Culture, Islamic and Society Building, Economic System in Islam, and Basics of Political System.

The second section comprises the Faculty (College of Science) Compulsory Requirements that encompass 27 CH. These courses are basic introductory courses in the natural sciences, mathematics, and informatics. In detail, the following classes have to be taken: General Biology, General Chemistry I, English Composition I + II, Computer programming, Calculus I, Renewable Energy, and General Physics I.

The University Requirements as well as the Faculty Requirements are identical for Biology and Chemistry students.

The most important section are the Department (Biology, Chemistry) Compulsory Requirements. The Biology students have to cover 82 CH out the following areas: Physical Geology, Organic Chemistry, Microbiology, Biochemistry, Biotechnology, Botany, Zoology, Ecology, Histology, Anatomy, Physiology, and Immunology.

The Chemistry students have to cover 80 CH out the following areas: General Chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Nano Chemistry, Electrochemistry, Quantum Chemistry, Polymer Chemistry, Chemical Thermodynamics, and Mathematics.

The Research Project is also part of the Department Compulsory Requirements.

Finally, there are the Department Elective Requirements. They encompass 8 CH for the Biology students and 10 CH for the Chemistry students. The electives are designed to offer students the opportunity to specialise in different areas of Life Sciences (e.g. Toxicology, Hydrobiology, Biodiversity, Enzymology), or Chemistry (e.g. Industrial Chemistry, Colloid Chemistry, Green Chemistry, Bioinorganic Chemistry).

The structure of the Bachelor's degree programmes Biology and Chemistry well as the individual courses are, from the auditors' point of view, coherent and consistent. This assessment is confirmed by the students who are very satisfied with the organisation and structure of the degree programmes. The auditors acknowledge positively that there is a curriculum committee in the Biology as well in the Chemistry Department, which meet regularly to discuss about the courses, possible overlaps, and the general structure of the respective degree programmes. The only weak points the auditors find is the lack of oral exams and presentations, and the improvable scientific depths and quality of the Bachelor's thesis (research project) as outlined under criterion 3. In addition, the peers see that the curriculum of the biology programme does not include a course in bioinformatics. Since this is a new and promising area of biological sciences, the peers recommend offer-

ing a course in bioinformatics as an elective for the Bachelor's students. This would broaden their knowledge and possibly enhance their job opportunities.

Each degree programme is composed of modules (here named "courses"), which the auditors perceive as comprehensive and self-contained teaching and learning units. In general, the auditors consider the intended learning outcomes and the content of the courses to be reasonable and adequate.

During the discussion with the students, the auditors notice that their ability to understand English is well developed but that they are reluctant to speak actively in English. For this reason, the auditors recommend further improving the students' English proficiency especially by encouraging them to communicate more actively. This could be achieved for example by introducing more oral exams and presentations (see criterion 3). The auditors stress that it is very useful to offer both degree programmes completely in English and that students should not only learn to read and listen but also should be able to communicate actively in English.

The auditors discuss with students and employers about job opportunities. Several of the graduates of the biology and chemistry programmes want to become high school teachers. There are also employment opportunities in the private sector, especially in the petrochemical industry. Several students want to continue their academic education with a Master's degree or possibly a PhD programme. For this reason, it would be useful to strengthen the role of the research project and to introduce more independent research activities so that graduates are better prepared for joining a Master's programme.

### *International Mobility*

The peers discuss with the programme coordinators whether there are windows of mobility for the students and point out that the international visibility and reputation of a university is increased by its research activities and the academic mobility of staff members and students. The academic mobility of the faculty members is already quite high and almost all teachers have international experience and contacts.

By contrast, studying abroad for a limited period during the Bachelor's programmes is not an option so far. The programme coordinators concede that the College of Science is waiting for the international accreditation of the Bachelor's degree programmes before starting international co-operations. Since the auditors learn from students and graduates that many of them plan to apply for international Master's programmes, the College of Sciences should immediately start to initiate exchange programmes with international universities and provide scholarships for qualified students. The auditors emphasize that it is very useful for students to spend some time abroad already during their Bachelor's



studies to improve their English proficiency and to enhance their opportunities for being accepted in an international Master's programme. Furthermore, the College of Science should invite more visiting lecturers, initiate more international exchange programmes, offer places for summer courses, and provide more scholarships for graduate students. A good starting point to initiate international cooperations are the manifold personal international contacts of the faculty members.

The auditors emphasize that it is very useful for students to spend some time abroad already during their Bachelor's studies to improve their English proficiency and to enhance their opportunities for being accepted in an international Master's programme.

There are rules for recognizing achievements acquired at other universities outside UOH, but this possibility is only a theoretical option and currently depends on the individual effort of the student. No support mechanisms for promoting academic mobility of undergraduate students are currently offered by the College of Science.

UOH is planning to offer Master's programmes in Chemistry and Biology in the next few years. Applicants for the Master's degree programmes will be recruited predominantly from the associated Bachelor's degree programmes. In view of this background, participating in exchange programmes and considering international mobility already at undergraduate level as part of the curriculum, may, according to the auditors, be an attractive approach to secure international standards and to train highly qualified and skilled future scientists at an internationally cooperating UOH.

<b>Criterion 2.2 Workload and credits</b>
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**Evidence:**

- Self-Assessment Report
- Study plans
- Module descriptions
- Discussions during the audit

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

According to the Self-Assessment Report, one Saudi Arabian credit hour is awarded for one 50- minute lecture or two or three 50-minute laboratory or tutorial sessions over the 15-week long semester. For undergraduate students a workload of 15 credit hours is expected in a semester and 30 credit hours in an academic year. In addition, a maximum of 18 credit hours can be assigned in one semester. All Biology and Chemistry students must

successfully complete 132 credit hours; GPA of 1/4, at least, is required for graduation.

The peers laude that a conversion of Saudi Arabian credit hours into credits point according to the European credit point System (ECTS) is put into effect at UOH and that this conversion is made transparent in the module descriptions (course specifications). The calculation of ECTS-credits is based on the regulation that one ECTS-credit corresponds to 25 hours of students' workload, including contact hours (lectures, laboratories) and self-study time. An average of 1500 hours is required to complete one academic year, which corresponds to 60 ECTS-credits.

The auditors perceive that the underlying credit hour system used for assigning credit points reflects attendance times of students including working hours required for self-studies and is in general appropriate. They also discuss with the programme coordinators and the students the length of the Bachelor's thesis and the related workload. The auditors gain the impression that the students regularly spent more time on the Bachelor's thesis than expected. Since the workload of the students was only estimated by the programme coordinators and seems to be too low in comparison to the actual time needed by the students, they suggest asking the students directly about their experiences. This could e.g. be done by including a respective question in the course evaluations. In any case, UOH must make sure that the actual workload of the students and the awarded credits correspond to each other. To this effect, the auditors recommend consulting the ECTS User's Guide: The estimation of workload must not be based on contact hours only (i.e. hours spent by students on activities guided by teaching staff). It embraces all the learning activities, including the time spent on independent work, compulsory work placements, preparation for assessment, and the time necessary for the assessment. In other words, a seminar and a lecture may require the same number of contact hours, but one may require significantly greater workload than the other because of differing amounts of independent preparation by students. Since workload is an estimation of the average time spent by students to achieve the expected learning outcomes, the actual time spent by an individual student may differ from this estimate. Individual students differ: some progress more quickly, while others progress more slowly. Therefore, the workload estimation should be based on the time an "average students" spends on self-studies and preparation for classes and exams. The initial estimation of workload should be regularly refined through monitoring and student feedback.

The peers discuss with the programme coordinators about the current dropout rates and the average length of studies. Data summarizing the number of admitted students, dropout rates, and the number of graduations suggest that the degree programmes can be completed within the regular timeframe (8 semesters). Students as well as programme coordinators confirm during the discussions with the auditors that only a few students

leave UOH after one or two semesters but several change their major because other degree programmes better fit their interests and qualifications. In total, the dropout rate is adequate.

In summary, the auditors conclude that there is no general structural pressure on the quality of teaching and the level of education due to the workload. The total workload appears to be adequate and the students are able to complete the degree programme without exceeding the regular period.

<b>Criterion 2.3 Teaching methodology</b>
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**Evidence:**

- Self-Assessment Report
- Study plans
- Module descriptions
- Discussions during the audit

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

The Bachelor's degree programmes in Biology and Chemistry at UOH are full-time and on-campus programmes with lectures, laboratories, and in-class and self-study activities. Class attendance is mandatory for all courses.

A range of didactical methods is applied in both degree programmes, to make sure that the students achieve the intended learning outcomes. Among the methods used are traditional lectures, classroom and laboratory exercises, assignments, small group work, presentations, and research activities. The teaching staff is required to apply these methods during teaching the courses and is encouraged to participate in teaching development activities (see criterion 4)

To help the students to achieve the intended learning outcome and to facilitate adequate learning and teaching methods UOH provides a digital learning platform. Teachers and students use it for presenting course materials like papers and assignments and for communicating with each other.

In summary, the peer group judges the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes.

<b>Criterion 2.4 Support and assistance</b>
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**Evidence:**

- Self-Assessment Report
- Discussions during the audit

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

Students receive support in many study- but also personal-related situations at UOH.

It begins with informing high school students by arranging several presentations about the department as well as showing selected experiments. This should help students in choosing their field of specialization in advance. Moreover, during the preparatory year, students are encouraged to attend several presentations about the different BSc programmes at UOH. After his admission to the Department of Biology or the Department of Chemistry, each student is assigned to an academic advisor for guidance and assistance in planning his study programme.

The academic counselling covers the following areas: guidance for choosing and registering courses according to his academic plan, preparing for post-graduate studies, promoting outstanding students, and assisting students with low academic achievements to improve their grades. Involved in support and assistance are furthermore programme coordinators as well as all members of the teaching staff. The teaching staff offers office hours for meeting students. The Dean for Student Affairs has overall responsibility for student guidance, problem solving, and academic / non-academic counselling. Sufficient resources for an effective support and assistance system exist and are appreciated and accepted by the students.

Both staff and students seem highly involved in the academic activities. Good relationships evidently exist between students and staff members. Reportedly, the teaching staff is highly responsive towards the students' needs and complaints as well. All students met by the auditors express a general and sometimes deep satisfaction with responsiveness of the teachers to their needs.

The auditors are impressed by the dedication of the teaching staff for supporting and assisting students. This strong engagement is directly reflected by dedication, contentment, and respect of the students towards their teachers, as expressed in conversations the auditors have during the audit.

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

The peers acknowledge that the University of Hail is aware of the importance and benefits of establishing students' and faculty exchange programmes. They support the plans to implement agreements with international universities in the near future.

The peers appreciate that UOH wants to introduce a course of bioinformatics into the curriculum of the Biology programme. This plan will be discussed in the next department/faculty council meeting.

The peers consider the criterion to be mostly fulfilled.

### 3. Exams: System, concept and organisation

<b>Criterion 3 Exams: System, concept and organisation</b>
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**Evidence:**

- Self-Assessment Report
- Module descriptions
- Discussions during the audit

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

As stated in the Self-Assessment Report, there is a period in every semester for midterm exams and a period for final exams. Student performance is not only evaluated based on the final examination but assignments, quizzes, laboratory work, homework, mid-term exam, and seminar work may also contribute to the final grade of a course. Examinations are typically written exams, such as essays, problem-solving or case-based questions, and calculation problems. The form of the exams for every module is specified in the associated module description (course specification). Examinations are scheduled according to UOH's academic calendar. On a scale of 0 to 100, 60 points are required to pass a course. Students are able to view their final grades online by logging into the Student Portal System. For repeating failed examinations, students must retake the course during the next semester.

By studying the Self-Assessment Report and from discussions during the audit, the auditors gain the impression that the methods used by the teaching staff at the College of Science for assessing learning outcomes are appropriate. The examination methods depend on the subject and the intended learning outcomes and range from mid-term and final examinations, laboratory works to subject-specific assignments and projects. Some written examinations, however, leave the impression behind that students seem to suc-

ceed in learning by heart and are merely reproducing this knowledge. This approach, in combination with prevalence of written assessments, and the fact that almost none of the exams is oral, casts doubts whether the selection of methods adequately prepares students for future careers in research-oriented professions. In order to better meet international scientific standards and to ensure that the intended learning outcomes of the courses are met, the auditors strongly recommend implementing more competence-oriented examination methods, for example oral examinations and presentations.

As stated in the Self-Assessment Report, there is a period in every semester for midterm exams and a period for final exams. Organization and scheduling of exams runs smoothly as exam dates are planned and published at the beginning of each semester and no issues of overlaps were reported by either students or teachers. Failed exams cannot be repeated, the whole course must be attended again in the next semester. The number of repetitions is unlimited. Students confirm that all rules and regulations regarding exams, calculation of grades and pass rates as well as scheduling and re-sits are clear to them and are transparently described.

Relevant rules for organizing and conducting examination, assessment criteria, procedures in case of re-sits, disability compensation measures, proceedings in case of illness and other mitigating circumstances are transparently put into legal regulations. Students and lecturers confirm in discussions that both sides are aware of the regulations, and the auditors have the impression that this system is operative with the aim to meet the requirements of the students as far as possible. In discussions, students describe the organization of examinations as transparent and responsive to their needs. This judgment explicitly includes the policy of retaking the course in the case of a failure.

Biology and Chemistry students who earned a minimum of 100 credit hours are able to register for the research project. During this course, students learn to understand the purpose and usefulness of scientific databases for searching and reviewing literature and are acquainted with the concepts of writing a scientific paper. Moreover, the course is designed to allow students to conduct scientific research and to write a report. The project is carried out within 4-6 weeks under the supervision of a professor. Finally, the student submits a final report and presents the results.

During the audit, the peers inspect sample exams and final theses (research projects). Not all theses shown to the auditors correspond to scientific standards, as would have been expected based on the project description. The auditors consider scientific working standards, ethics in science, and concepts of writing scientific publications essential for graduating from scientific study programmes.

In order to meet international standards the auditors strongly recommend reconsidering scope, experimental background and documentation of the research project. Setting international standards will be the key for students to continue academic education, particularly abroad, and will support graduates in finding a science-related job in the private sector or at universities. Appropriate scope and academic quality of a Bachelor's thesis in Biology and Chemistry have to be guaranteed in order to meet the learning outcome "produce high quality scientific research" in every instance. In addition, the peers suggest making transparent e.g. in the Transcript of records or the Diploma Supplement that the research project is more or less equivalent to a Bachelor's thesis. This would facilitate to evaluate the students' academic performance and help them in case of an application for a Master's programme.

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

The peers see that UOH has updated the course specification of research project course in both degree programmes. The importance of independent research activity is pointed out, and additional lecture topics such as scientific working standards, ethics in science, and concepts of writing scientific publications were included. In addition, a template for research reports and a guide about how to write the research report were developed. The peers point out that in the specifications for the research project the subdivisions "results and discussion" are combined. It would be more useful for students to treat both aspects separately. This would make it easier to distinguish more clearly between the results achieved and their evaluation, interpretation, and comparison with the literature.

UOH agrees with the peers that students are able to understand English but are reluctant to speak actively in English. For this reason, the peers suggest introducing more oral exams and presentations and UOH will take this recommendation into account. The peers are pleased that UOH has already updated the assessment methods for twenty-four courses in the Chemistry programme and twenty courses in the Biology programme. The number of courses with oral exams will be increased during the next semesters, so that students will become used to this assessment method gradually.

The peers consider the criterion to be mostly fulfilled.

## 4. Resources

<b>Criterion 4.1 Staff</b>
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**Evidence:**

- Self-Assessment Report
- Staff Handbook
- Instructor Course Assessment Report
- Regulations for Saudi and Non-Saudi Staff

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

At Hail University, the staff members occupy different academic positions. There are professors, associate professors, assistant professors, lecturers, and demonstrators. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, a full professor needs to hold a PhD degree. Moreover, the responsibilities and tasks of a staff member with respect to teaching load, research, and supervision depend on the academic position.

The College of Science employs 101 full-time faculty members committed to the institution's educational mission, to student needs, and to furthering the quality of the programmes. The Department of Chemistry includes 29 academic staff and 31 supporting staff; the Department of Biology consists of 32 academic staff and 52 supporting staff members. Thus, in both programmes the student-to-faculty ratio amounts to 9:1, showing that the departments encompass a sufficient amount of faculty members to carry out its educational mission. The majority of the professors are not from Saudi Arabia but from countries such as Tunisia or Egypt, and their employment contracts are limited to one year and thus must be renewed annually up to a maximum of ten years. The peers are informed that the one-year contracts are common practice throughout Saudi Arabia and that, unless the professors fail to teach adequately, their contracts are always renewed.

The auditors also appreciate that most of the staff members – whether international or native to Saudi Arabia – have acquired their PhD internationally, e.g. in the United Kingdom, Germany, or the United States. They encourage the College of Science to continue this policy and to send as many staff members as possible abroad for postgraduate education to further the international quality and orientation of the staff and the programmes.

To ensure that enough professors, lecturers, and demonstrators are available each se-



mester to carry out sufficient teaching units, each college calculates how many new members of staff they require for the upcoming semester. The number of staff members necessarily correlates with the number of students so that a staff-to-student ratio of a maximum of 1:25 is maintained at all time. The number of necessary staff is then send to a hiring committee, which announces open positions on international websites or other public platforms. The peers were impressed with this procedure as it ensured an adequate support of the students at all times. Furthermore, the University also invites teachers from other departments or hospitals to guarantee adequate personal resources at all times.

The auditors are very impressed by the excellent, open-minded, and trustworthy atmosphere among the students and the staff members, as this atmosphere of understanding and support is one of the strong points of the degree programmes.

In summary, the auditors confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes.

<b>Criterion 4.2 Staff development</b>
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**Evidence:**

- Self-Assessment Report
- Discussions with the teaching staff

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

Both departments, Biology and Chemistry, place great value on effective teaching, which is evident by the provided support of the faculty members. The departments keep abreast with research on learning and teaching and apply advanced technologies that affect positively the student's instructional delivery. The peers also commend that Saudi and non-Saudi faculty members alike are offered opportunities for career and personal development to maintain a satisfactory level of performance. UOH has established a Skills Development Unit (SDU) as a section of the Quality and Development Deanship. This unit is responsible for identifying the staffs' needs, organizing workshops and seminars, which aim at sustaining different didactical, communication and professional skills, raising awareness of self-development, and applying new teaching methods. Furthermore, UOH has established a supporting unit attached to the Vice Rectorate for Postgraduate Studies and Scientific Research, to provide the lecturers and demonstrators with information and

assist their acceptance at international Universities to fulfil their next M.Sc. and/or Ph.D. degrees.

The peers are also informed that members of the staff are allowed to attend international conferences abroad or to work jointly with international staff in research projects and that they are financed during their stay abroad by UOH. Yet, the peers also learn that the teaching staff, due to their teaching obligation at UOH, are only able to attend international conferences during their 3-month holiday period. Here, the peers encourage the staff and the University to attend more international events and to participate in international research projects to further the teachers' abilities and consequently the students' knowledge.

In summary, the auditors confirm that UOH offers sufficient support mechanisms and opportunities for the didactic and personal improvement of members of the teaching staff but recommend that teachers should also have adequate time and space to focus on their research and to attend international conferences.

<b>Criterion 4.3 Funds and equipment</b>
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**Evidence:**

- Self-Assessment Report
- On-site visit of the laboratories, lecture rooms, and the library

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

As mentioned in the Self-Assessment Report, the College of Science is equipped with 47 classrooms, supplied with smart platforms, as well as 29 laboratories. The University offers personal Windows laptop computers for all members of staff, nearly all desks are supplied with desktop computers connected to internet and printers, and WLAN services are offered for both staff and students to access their teaching and learning modules and to view their academic registrations or credit points achieved. A specialized portal web-site for course information, learning materials, assignments, and electronic exams is accessible through the blackboard system of the University.

The auditors are impressed by the modern central library that offers direct access to international literature, scientific journals, and publications. The students also express their satisfaction with the library and the available literature. From their point of view, there is sufficient access to current international literature and databases and a remote access is possible. The students also expressed their content with the amount of books – both in print and electronic – that are available in the library and state that there are enough of the same books available for students to take home and study on their own.

During the audit, the peer group also visits the laboratories, the library, and the lecture rooms in order to assess the quality of infrastructure and technical equipment. The financial resources of the university are sufficient for guaranteeing the sustenance of the degree programmes. Overall, there are no problems at UOH with respect to resources. On the contrary, the auditors highlight the sophisticated and comprehensive technical equipment of the central laboratory, which is not common standard at many other universities with similar degree programmes. There are enough advanced instruments for adequately teaching the students, enough working places are available. The students confirm this positive impression; they are satisfied with the technical equipment and the resources for teaching.

The auditors discuss with representatives of UOH's management funding issues and available financial resources for the College of Science. The auditors learn that the government provides most funding for teaching and equipment. Further funding can be applied for at the King Abdulaziz City for Science and Technology (KACST), an independent scientific organisation that is the national science agency of Saudi-Arabia under the regime of the Saudi Arabian Prime Minister. KACST is primarily in charge of proposing, developing, and implementing strategies for the advancement of science and technology concerning national and international affairs. Private companies provide additional financial funds, e.g. for financing research chairs.

The auditors understand that the governmental funding is closely linked to the number of students admitted to UOH and that the funding is secured for the next years. For distributing the available financial resources within UOH, every College has to submit an annual plan that lists needs and requirements of the division.

In summary, the auditors consider the available funds, technical equipment, and infrastructure (laboratories, library, seminar rooms etc.) adequate for implementing the degree programmes.

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

The university does not comment on this criterion in its statement.

The peers consider the criterion to be fulfilled.

## 5. Transparency and documentation

### Criterion 5.1 Module descriptions

**Evidence:**

- Self-Assessment Report
- Module descriptions
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>

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

With the Self-Assessment Report, UOH handed in the module descriptions of the Bachelor programmes Chemistry and Biology. These module descriptions are also available to the students via the University's intranet.

The teaching staff prepares each module individually, but its execution and its description have to follow fixed guidelines set up by the University. The peers assess the guidelines and the actual published module descriptions and regard them as sufficient.

Nevertheless, the auditors point out, that the module descriptions for the university requirements were not available to them during the audit. In order to assess the content of the compulsory courses, the auditors ask UOH to submit the syllabus for the university requirements in an English translation.

### Criterion 5.2 Diploma and Diploma Supplement

**Evidence:**

- Self-Assessment Report
- Sample Transcript of Records for each degree programme
- Sample Diploma Certificate for each degree programme
- Sample Diploma for each degree programme
- Sample Diploma Supplement for each degree programme

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

The auditors approve from studying the documents provided for review that the students of the degree programmes in Biology and Chemistry be awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records.

The auditors point out that the Diploma Supplement should inform about the structure and content of the respective degree programme, provide information about the individual performance as well as statistical data regarding the final grade, and include information about the composition of the final grade according to the ECTS-Users' guide. This allows the reader to categorise the individual result.

In order to rate the level of academic education and qualification from a study programme, as common practice in countries UQU wishes to compete with, the auditors expect that all graduates of the degree programmes must be provided with a standardised Diploma Supplement. This way academic qualification is comparable and raises chances for succeeding on the job market or for applying for continuing studies abroad. For this reason, the peers ask to update the Diploma Supplement for both degree programmes.

<b>Criterion 5.3 Relevant rules</b>
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**Evidence:**

- Self-Assessment Report
- Webpage University of Hail: <http://www.uoh.edu.sa/en/Pages/default.aspx>

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

The auditors confirm that the rights and duties of both, UOH and students, are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all relevant stakeholders. In addition, the students receive all relevant course materials in Arabic at the beginning of every semester.

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

The peers accept the changes made in the Diploma Supplements. In the programme details (section 4.3), details of research project (credit hours and ECTS credits) are now mentioned, and the following line was added: "The research project is more or less equivalent to a Bachelor's thesis".

In addition, all the degree requirements, such as university requirements, college requirements, major requirements (compulsory courses, elective courses, and research project) are now mentioned along with their credit hours and equivalent ECTS credits in section 4.3 of the Diploma Supplement. Finally, to categorise the individual result, a grade distribution table was added with the statistical distribution of grades (pass and above)

awarded to the respective degree (chemistry/biology) with graduates from the last two years as a reference group.

Unfortunately, UOH does not mention the programmes requirements and the specific access requirements in the Diploma Supplement but only refers to UOH's webpage. The peers hold the view that a link is insufficient; the Diploma Supplement must include the relevant information. For this reason, they expect UOH to update the Diploma Supplement so that it contains detailed information about the educational objectives and the intended learning outcomes of the respective degree programme.

The peers consider the criterion to be mostly fulfilled.

## 6. Quality management: quality assessment and development

### Evidence:

- Self-Assessment Report

### Preliminary assessment and analysis of the peers:

The auditors discuss the quality management system at UOH with the programme coordinators and the students. They learn that the measures to secure and improve the quality of both degree programmes are conducted through the following ways: First, Key Performance Indicators (KPI) are established to measure annually whether the overall performance of the programmes is consistent with national benchmarks. Second, the Deanship of Quality and Development (DQD) facilitates, oversees and controls a concise quality management system that detects and adapts the strengths and weaknesses of each programme. Finally, a variety of other quality measures is in place, such as an internal audit committee, evaluations, or feedback from the university's stakeholders that in sum aid in improving the quality of the study programmes.

In regular intervals throughout the academic year, the Deanship of Quality and Development and its units in the respective departments carry out activities with the students, such as general meetings or quality day activities, to demonstrate the importance of quality management and its impact on the students' performance and achievement. During such activities, students fill out several evaluations concerning their opinion on study materials, learning capabilities, or academic support and advising. The peers learn that the results of these surveys are discussed with the students, the professors and other personnel responsible for academic guidance and improvement suggestions are reviewed

and presented to the department council.

During the on-site visit, the auditors learn that the quality management of the two degree programmes is undertaken jointly by both, the male and the female branches. The programme coordinators and the staff responsible for the quality management state that everything related to the quality management, such as curricula and templates, is discussed in unison first and implemented afterwards separately in both campuses. All the while, there continues to exist close communication between both campuses to ensure that the programmes remain identical with regard to their content and their implementation.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes. All stakeholders are involved in the process.

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

The university does not comment on this criterion in its statement.

The peers consider the criterion to be fulfilled.

## D Additional Documents

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

- Module descriptions for the university compulsory courses in English:
  - Arabic language skills (ARAB 101)
  - Arabic Composition (ARAB 102)
  - Introduction to Islamic Culture (IC 101)
  - Islamic and Society Building (IC 102)
  - Economic System in Islam (IC 103)
  - Basic of Political System (IC 104)



## **E Comment of the Higher Education Institution (13.02.2019)**

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

- Annex 1: Updated Chemistry handbook of course specifications
- Annex 2: Updated Biology handbook of course specifications
- Annex 3: Updated Chemistry Programme specification
- Annex 4: Updated Biology Programme specification
- Annex 5: Changes in the assessment methods in course specifications
- Annex 6: Template for Diploma Supplement for B.Sc. Chemistry program
- Annex 7: Template for Diploma Supplement for B.Sc. Biology program
- Annex 8: Model transcript for B.Sc. Chemistry program
- Annex 9: Model transcript for B.Sc. Biology program
- Annex 10: Template for research report
- Annex 11: A guide to write the research report
- Module descriptions for the university compulsory courses in English

## F Summary: Peer recommendations (20.2.2019)

Taking into account the additional information and the comments given by UOH, 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 Biology	With requirements for one year	-	30.09.2024
Ba Chemistry	With requirements for one year		30.09.2024

### Requirements

#### For all degree programmes

- A 1. (ASIIN 5.2) Update the Diploma Supplement so that it contains detailed information about the educational objectives and the intended learning outcomes.

### Recommendations

#### For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to further improve the English proficiency of the students.
- E 2. (ASIIN 2.1) It is recommended to offer a course in bioinformatics.
- E 3. (ASIIN 2.1) It is recommended to send more students abroad and to establish more cooperations with international universities.
- E 4. (ASIIN 3) It is recommended to increase the scope of the research project.
- E 5. (ASIIN 3) It is recommended to conduct more presentations and oral exams.

## G Comment of the Technical Committees

### Technical Committee 09- Chemistry (07.03.2019)

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

The Technical Committee confirms that the equipment on the male campus is significantly better than on the female campus. The only point of criticism remains the not yet satisfactory Diploma Supplement. After discussing the admission requirements and non-subject modules, the expert committee proposes two additional recommendations. The admission requirements should not take into account the applicant's state of health and the learning outcomes in Ba Chemistry should be limited to the specialist competences to be acquired (analogous to Ba Biology). The TC proposes a further change: Recommendation E2 is only relevant for the biology programme.

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

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

### Technical Committee 10- Life Sciences (08.03.2019)

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

The Technical Committee confirms that the equipment on the male campus is significantly better than on the female campus. The only point of criticism remains the not yet satisfactory Diploma Supplement. After discussion on this point, the expert committee approves the proposed conditions and recommendations, however, the expert committee proposes to issue recommendation E2 only for the biology programme.

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

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

## Recommendations

### For all degree programmes

E 5. (ASIIN 1.4) It is recommended to admit all qualified applicants to the degree programmes, regardless of their state of health.

### For the Bachelor's degree programme Chemistry

E 6. (ASIIN 1.1) It is recommended to limit the learning objectives to the imparting of subject-specific competences.

### For the Bachelor's degree programme Biology

E 7. (ASIIN 2.1) It is recommended to offer a course in bioinformatics.

## H Decision of the Accreditation Commission (29.03.2019)

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

The Accreditation Commission discusses the accreditation procedure and mostly agree with the assessment of the peers and the Technical Committees Biology and Chemistry. They, however, revoke two recommendation the Technical Committee 09 has stated. First, while it is generally preferable to allow students to study, independent of their physical or mental health, this is not always possible nor safe. Second, it is not necessary to limit the learning objectives to the imparted subject-specific competences.

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

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

### Requirements

#### For all degree programmes

- A 1. (ASIIN 5.2) Update the Diploma Supplement so that it contains detailed information about the educational objectives and the intended learning outcomes.

### Recommendations

#### For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to further improve the English proficiency of the students.
- E 2. (ASIIN 2.1) It is recommended to send more students abroad and to establish more cooperations with international universities.
- E 3. (ASIIN 3) It is recommended to increase the scope of the research project.
- E 4. (ASIIN 3) It is recommended to conduct more presentations and oral exams.

**For the Bachelor's degree programme Biology**

E 5. (ASIIN 2.1) It is recommended to offer a course in bioinformatics.

# I Fulfilment of Requirements (March 2020)

## Comments of the peers and the Technical Committees (09.03.2020)

### Requirements

#### For all degree programmes

- A 1. (ASIIN 5.2) Update the Diploma Supplement so that it contains detailed information about the educational objectives and the intended learning outcomes.

Initial Treatment	
Peers	fulfilled Justification: The Diploma Supplement now contains detailed information about the educational objectives and the intended learning outcomes. It contains sufficiently both general and biology specific goals at different taxonomic levels appropriate to a Bachelor's degree.
TC 09	fulfilled Justification: The TC follows the assessment of the peers.
TC 10	fulfilled Justification: The TC follows the assessment of the peers.

## Decision of the Accreditation Commission (March 2020)

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ba Biology	All requirements fulfilled	-	30.09.2024
Ba Chemistry	All requirements fulfilled	-	30.09.2024

## 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's degree programme Biology:

Programme Learning Outcomes	
<b>1. Knowledge</b>	
1.1	Describe the fundamental concepts, theories and principles of modern biology.
1.2	Illustrate an up-to-date knowledge of the major areas of biology.
1.3	Recognize knowledge in different areas of specialization of the biology.
1.4	Outline the processes and mechanisms that have shaped the nature of living organisms.
1.5	Define sufficient knowledge for employment purposes and benefit from advanced programmes for higher academic degrees.
1.6	Recognize esthetical topics and the broader implications of advanced scientific biological applications and their impact on the society and environment.
1.7	Demonstrate understanding of the biological subjects inputs to the development of knowledge about origin, different levels and complexity of life.
1.8	Develop core knowledge of the molecular biosciences and its applications at the cutting edge of biology.
<b>2. Cognitive Skills</b>	
2.1	Compare and integrate data and information from different scientific resources
2.2	Develop skills of critical thinking and analytical reasoning of current theories and hypotheses
2.3	Employ and interpret biological information and subject-related knowledge to solve problems
2.4	Formulate biological tested data and select the proper mechanism for their setting within a theoretical framework.
2.5	Create innovative solutions, taking into account the theoretical knowledge and related practical experience



- 2.6 Analyze and evaluate issues influencing environmental, public health, safety, reliability and ethical considerations

### 3. Interpersonal Skills & Responsibility

- 3.1 Tackle sufficient practical skills appropriate to the discipline under study to ensure competence
- 3.2 Demonstrate understanding of the interdisciplinary nature of science and the validity of different opinions
- 3.3 Show ability to act independently with minimal supervision or as a part of a team within standard guidelines
- 3.4 Follow ethical rules in professional issues related to the values and moral judgments
- 3.5 Apply pedagogical knowledge to understand the biological basis to strengthen capabilities of learning
- 3.6 Practice the style and procedures of carrying out the tasks within appropriate scientific standards

### 4. Communication, Information Technology, Numerical

- 4.1 Assess and interpret biological problems using qualitative and quantitative measurements, statistical, mathematical, and use of information technology
- 4.2 Evaluate collected data, ensuring validity, accuracy, reliability and replicability
- 4.3 Prepare and present data both orally and written and select the appropriate display formats and approaches for different issues and different audiences
- 4.4 Employ the internet and electronic databases as a source of information and a mean of communication.

### 5. Psychomotor

- 5.1 Prepare the laboratory and field facilities to carry out certain experiments
- 5.2 Perform laboratory work with the ability to adapt to unexpected results, and design new strategies to solve the problems

- |     |  |
|-----|--|
| 5.3 | Illustrate microscopic samples, anatomical and morphological features correctly and accurately                     |
| 5.4 | Show a critical approach, research oriented attitude and a concern for safety of colleagues in laboratory settings |
| 5.5 | Examine and critically evaluate the biological data to prepare reports   |

The following **curriculum** is presented:

### FIRST YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
ARAB 101	Arabic language skills	2	2	0	ARAB 102	Arabic Composition	2	2	0
ENGL 110	English language	3	3	0	BIOL 101	General Biology	4	3	3
IC 101	Introduction to Islamic culture	2	2	0	CHEM 101	General Chemistry I	4	3	3
MATH 101	Calculus I	4	4	0	ENGL 101	English Composition I	3	3	0
PHYS 100	Renewable Energy	2	2	0	IC 102	Islamic and Society Building	2	2	0
PHYS 101	General Physics I	4	3	3	ICS 103	Computer Programming	3	2	3
TOTAL		17	16	3	TOTAL		18	15	9

### SECOND YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
BIOL 211	Cell Biology	2	2	0	BIOL 212	General Genetics	3	2	3
BIOL 221	Systematic Botany	3	2	3	BIOL 241	General Ecology	3	2	3
BIOL 231	Systematic Zoology	3	2	3	CHEM 270	Organic Chemistry	3	2	3
ENGL 102	English Composition II	3	3	0	GEOL 201	Physical Geology	3	2	3
IC 103	Economic System in Islam	2	2	0	IC 104	Basics of Political System	2	2	0
MATH 205	Biostatistics	2	2	0					
TOTAL		15	13	6	TOTAL		14	10	12



### THIRD YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
BIOL 311	Basic Biochemistry	3	2	3	BIOL 312	Molecular Biology	3	2	3
BIOL 324	General Microbiology	3	2	3	BIOL 322	Plant Taxonomy	3	2	3
BIOL 331	Invertebrates	3	2	3	BIOL 327	Research Design & Methodology	1	1	0
BIOL 332	Chordates	3	2	3	BIOL 367	Basic Plant Physiology	3	2	3
BIOL 333	Animal Histology	2	1	3	BIOL 368	Basic Animal Physiology	3	2	3
BIOL 353	Plant Morphology & Anatomy	3	2	3	BIOL 383	Economic Zoology	1	1	0
					BIOL 437	Fauna and Flora of KSA	2	1	3
TOTAL		17	11	18	TOTAL		16	11	15

### FOURTH YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
BIOL xxx	Elective (1)	2	-	-	BIOL xxx	Elective (3)	2	-	-
BIOL xxx	Elective (2)	2	-	-	BIOL xxx	Elective (4)	2	-	-
BIOL 417	Principles of Biotechnology	3	2	3	BIOL 419	Archegoniates & Phycology	2	1	3
BIOL 418	Environmental Pollution	2	2	0	BIOL 434	Immunology	3	2	3
BIOL 422	Plant Ecology	3	2	3	BIOL 435	Parasitology	3	2	3
BIOL 431	Animal Ecology and Behavior	3	2	3	BIOL 436	Animal Embryology	2	1	3
BIOL 433	Entomology	3	2	3	BIOL 497	Research Project	3	0	6
TOTAL		18	-	-	TOTAL		17	-	-

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

<b>Programme Learning Outcomes</b>	
<b>1. Knowledge</b>	
<b>1.1</b>	Describe the fundamentals of chemistry including structure, reactivity and properties of chemical substances, different situation of reaction and the states of matter.
<b>1.2</b>	Construct essential facts, principles and theories across the four principal areas of chemistry, i.e. analytical, organic, inorganic and physical.
<b>1.3</b>	Align major issues currently at the frontiers of chemical research and development.
<b>1.4</b>	Memorize certain knowledge in Arabic and English languages, computer science, Islamic religion
<b>1.5</b>	Recognize certain subjects in biology, physics and mathematics that serve the chemistry disciplines
<b>1.6</b>	Outline the role of applied chemistry, which enables him to effectively use his/her information gained in all courses in different branches of chemistry
<b>1.7</b>	State certain subjects that are academically and/or professionally related to chemistry (for those completing the BS.C. Chemistry degree that includes elective courses).
<b>2. Cognitive Skills</b>	
<b>2.1</b>	Differentiate between the different states of the matter, elements and compounds based on the recognition and quantification of the properties
<b>2.2</b>	Explain concepts, principles and determine the efficiency of chemical systems by applying mathematical expressions
<b>2.3</b>	Analyse chemical and spectral data to identify and confirm chemical structures as well as determine chemical composition
<b>2.4</b>	Establish and conclude mechanisms for physical and chemical processes
<b>2.5</b>	Solve the scientific problems using different mechanisms and procedures
<b>2.6</b>	Present scientific material and arguments clearly and correctly, in writing and orally, to a range of audiences
<b>2.7</b>	Calculate mathematically the output of different chemical reactions
<b>3. Interpersonal Skills &amp; Responsibility</b>	
<b>3.1</b>	Demonstrate adequate life-long learning skills
<b>3.2</b>	Collaborate effectively with other people in a team.
<b>3.3</b>	Select appropriate techniques and procedures for chemical synthesis and analysis.
<b>4. Communication, Information Technology, Numerical</b>	
<b>4.1</b>	Demonstrate information technology skills, especially in the areas of information retrieval, literature searching and use of library databases

4.2	Communicate effectively both orally and in writing with professionals and/or lay audience
4.3	Interpret data derived from laboratory observations and measurements in terms of their significance and the theory underlying them.
4.4	Employ computational software's and data- processing skills in handling of chemical information and analysis of chemical data
<b>5. Psychomotor</b>	
5.1	Assemble and use properly chemistry experimental setups
5.2	Perform correctly quantitative measurements requiring accurate and precise manipulations

The following **curriculum** is presented:

### FIRST YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
ARAB 101	Arabic language skills	2	2	0	ARAB 102	Arabic Composition	2	2	0
ENGL 110	Writing Skills	3	3	0	BIOL 101	General Biology	4	3	3
IC 101	Introduction to Islamic culture	2	2	0	CHEM 101	General Chemistry I	4	3	3
MATH 101	Calculus I	4	4	0	ENGL 101	English Composition I	3	3	0
PHYS 100	Renewable Energy	2	2	0	IC 102	Islamic and Society Building	2	2	0
PHYS 101	General Physics I	4	3	3	ICS 103	Computer Programming	3	2	3
TOTAL		17	16	3	TOTAL		18	15	9

### SECOND YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
CHEM 102	General Chemistry II	4	3	3	CHEM 262	Chemical Thermodynamics	3	3	0
CHEM 115	Instruments and Lab. Safety	1	1	0	CHEM 274	Organic Chemistry II	2	2	0
CHEM 273	Organic Chemistry I	2	2	0	CHEM 275	Practical Organic Chemistry I	2	0	6
CHEM 286	Chemistry of Main Group Elements	2	2	0	CHEM 287	Chemistry of Transition Metals	2	2	0
CHEM 293	Volumetric and Gravimetric Analysis	4	3	3	CHEM 294	Methods of Spectroscopic Analysis	2	2	0
ENGL 102	English Composition II	3	3	0	IC 104	Basics of Political System	2	2	0
IC 103	Economic System in Islam	2	2	0	MATH 200	Mathematics	2	2	0
					PHYS 201	General Physics for Scientist	2	2	0
TOTAL		18	16	6	TOTAL		17	15	6



### THIRD YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
CHEM xxx	Elective (1)	2	2	0	CHEM xxx	Elective (2)	2	2	0
CHEM 310	Nano-Chemistry	2	2	0	CHEM xxx	Elective (3)	2	2	0
CHEM 366	Electrochemistry	2	2	0	CHEM 312	Biochemistry	2	2	0
CHEM 367	Practical Physical Chemistry I	2	0	4	CHEM 368	Chemical Kinetics	2	2	0
CHEM 371	Organic Reaction Mechanism	2	2	0	CHEM 376	Organic Spectroscopy	2	2	0
CHEM 385	Coordination Chemistry	3	2	3	CHEM 377	Polymer Chemistry	2	2	0
CHEM 392	Electroanalytical Techniques	2	2	0	CHEM 387	Solid State Chemistry	2	2	0
CHEM 393	Environmental Analysis	2	2	0	CHEM 394	Practical Instrumental Analysis	2	0	4
TOTAL		17	14	7	TOTAL		16	14	4

### FOURTH YEAR

FIRST SEMESTER					SECOND SEMESTER				
CODE	COURSE TITLE	Cr.	Lect.	Lab.	CODE	COURSE TITLE	Cr.	Lect.	Lab.
CHEM xxx	Elective (4)	2	2	0	CHEM xxx	Elective (5)	2	2	0
CHEM 461	Quantum Chemistry	2	2	0	CHEM 466	Surface and Catalysis	2	2	0
CHEM 470	Heterocyclic Chemistry	2	2	0	CHEM 467	Practical Physical Chemistry II	2	0	6
CHEM 478	Practical Organic Chemistry II	2	0	6	CHEM 479	Petrochemicals	2	2	0
CHEM 480	Applied Inorganic Chemistry	2	1	3	CHEM 488	Organometallic Chemistry	2	2	0
CHEM 483	Nuclear and Radiation	2	2	0	CHEM 495	Applied Analytical Chemistry	2	1	3
CHEM 493	Chromatographic Separation Methods	2	1	2	CHEM 497	Research Project	3	0	6
TOTAL		14	10	11	TOTAL		15	9	15