CURRICULUM FOR THE BACHELOR’S PROGRAM IN CHEMISTRY.

Johannes Kepler University Linz
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</table>
§ 1 Qualification Profile

(1) The English-language Bachelor's program in "Chemistry" at the Faculty of Engineering and Natural Sciences (TNF) of the Johannes Kepler University (JKU) Linz has been designed to attract students and scholars from around the world and provide an internationally supportive environment for the advancement of science and technology. In the first academic year, some of the courses will also be offered in German.

(2) The Bachelor’s program in "Chemistry" is offered by the Faculty of Engineering & Natural Sciences at the JKU. The program has been designed to educate chemists by providing a strong base in fields of engineering and natural sciences. The program includes broad, fundamental studies in various fields of chemistry, chemical technologies and chemical process engineering. Students who successfully complete the Bachelor’s program in "Chemistry" are qualified for admission to a corresponding Master's degree program or can opt to pursue a profession in the field of chemical-technology.

(3) The Bachelor’s program in "Chemistry" provides students with expertise in the following fields:

- Broad knowledge in analytical chemistry, inorganic chemistry, organic chemistry, polymer chemistry, physical chemistry, chemical technologies and chemical process engineering;
- Basic knowledge in mathematics, physics and other core areas in the field of natural sciences to support higher education in chemistry;
- Ability to work competently in a chemical laboratory environment and handle chemical substances safely and responsibly;
- Apply science-based strategies to address real-world issues and problems;
- Identify innovative approaches for product or process improvement;
- Ability to assess the technological impact and resulting effects on society and the environment in both the short-term and the long-term;
- Soft skills, such as general knowledge skills, inter-cultural communication skills, knowledge of foreign languages, presentation skills, how to be an effective part of a team, legal issues, and gender issues.

(4) The academic degree program focuses strongly on principles of research-supported learning and research-led teaching to ensure that graduates have the qualifications and academic understanding needed to address complex issues, keep up with continual advancements in the field of chemistry, and solve problems based on correctly selected factual knowledge.

§ 2 Structure and Outline

(1) In accordance with § 54 para. 1 UG the Bachelor’s program in "Chemistry" belongs to the category of engineering degrees.

(2) The Bachelor’s program in "Chemistry" covers six semesters and consists of 180 ECTS points, which are distributed among the following subjects:

<table>
<thead>
<tr>
<th>Subjects</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory Subjects</td>
<td>162</td>
</tr>
<tr>
<td>Bachelor’s Thesis</td>
<td>9</td>
</tr>
<tr>
<td>Free Electives</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
</tr>
</tbody>
</table>
(3) For Free Electives students have to pass examinations corresponding to 9 ECTS points, which can be chosen from any recognized national or international post-secondary educational institution. The Free Electives shall provide additional skills beyond the Bachelor’s program in "Chemistry" and can be taken anytime during the Bachelor’s study.

(4) The recommended course of study is listed in the annex 1.

§ 3 Studies Introductory and Orientation Phase

(1) According to § 66 para. 1 UG the studies introductory and orientation phase consists of courses which give an overview of the fundamental contents and structure of the corresponding curriculum of studies. The studies introductory and orientation phase of the Bachelor’s program in "Chemistry" covers courses amounting to at least 8 ECTS points in total, which can be chosen out of the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Type of Course</th>
<th>Name</th>
<th>ECTS WS</th>
<th>ECTS SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>290GiCHIGCV18</td>
<td>VL</td>
<td>Introduction to General Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290ANCHIACV18</td>
<td>VL</td>
<td>Introduction to Analytical Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290OPCHIOCV18</td>
<td>VL</td>
<td>Introduction to Organic Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290GICHCCAK18</td>
<td>KV</td>
<td>Chemical Calculations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290GESKCLSK18</td>
<td>KV</td>
<td>Chemical Laboratory Safety</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>290GICHIC1V18</td>
<td>VL</td>
<td>Inorganic Chemistry I</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td>290PHCHCTDK18</td>
<td>KV</td>
<td>Chemical Thermodynamics</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>290ANCHANCV18</td>
<td>VL</td>
<td>Analytical Chemistry</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td>290OPCHOC1V18</td>
<td>VL</td>
<td>Organic Chemistry 1</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td>290GiCHILCP18</td>
<td>PR</td>
<td>Introductory Lab Course (*)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>290MAFSIMAK18</td>
<td>KV</td>
<td>Introduction to Mathematics</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>GS-ISE</td>
<td>KV</td>
<td>Introduction into Gender Studies in Science and Engineering</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290MAFSIPCK18</td>
<td>KV</td>
<td>Introduction to Physics for Chemistry</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>290MAFSMC1V18</td>
<td>VL</td>
<td>Mathematics for Chemistry I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290MAFSMC1U18</td>
<td>UE</td>
<td>Applications of Mathematics for Chemistry I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290GiCHILGCP18</td>
<td>PR</td>
<td>Lab Course in General Chemistry (*)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

(2) Before completion of the studies introductory and orientation phase further courses to an extent of 22 ECTS points can be chosen out of the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Type of Course</th>
<th>Name</th>
<th>ECTS WS</th>
<th>ECTS SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>290MAFSIMAK18</td>
<td>KV</td>
<td>Introduction to Mathematics</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>GS-ISE</td>
<td>KV</td>
<td>Introduction into Gender Studies in Science and Engineering</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290MAFSIPCK18</td>
<td>KV</td>
<td>Introduction to Physics for Chemistry</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>290MAFSMC1V18</td>
<td>VL</td>
<td>Mathematics for Chemistry I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290MAFSMC1U18</td>
<td>UE</td>
<td>Applications of Mathematics for Chemistry I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290GiCHILGCP18</td>
<td>PR</td>
<td>Lab Course in General Chemistry (*)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Type of Course</td>
<td>Name</td>
<td>ECTS WS</td>
<td>ECTS SS</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------</td>
<td>------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>290ANCHLACP18</td>
<td>PR</td>
<td>Lab Course in Analytical Chemistry (*)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>290MAFSPHCV18</td>
<td>VL</td>
<td>Physics for Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290MAFSPHCU18</td>
<td>UE</td>
<td>Exercises in Physics for Chemistry</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>290MAFSMC2V18</td>
<td>VL</td>
<td>Mathematics for Chemistry II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>290MAFSMC2U18</td>
<td>UE</td>
<td>Applications of Mathematics for Chemistry II</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

(*) This course has pre-requisites.

(3) For students, who within the curricula of the
1. Bachelor’s program Fundamentals of Natural Sciences for Technology at JKU
2. Bachelor’s program Biological Chemistry at JKU and the University of South Bohemia in
   České Budějovice
3. Bachelor’s program Technische Chemie at the Vienna University of Technology
4. Bachelor’s program Chemie at the University of Vienna
5. Bachelor’s program Chemie at the Graz University of Technology or the University of Graz
6. Bachelor’s program Chemie at the University of Innsbruck

have successfully completed the studies introductory and orientation phase in accordance with
the relevant legal provisions and who, therefore, by the time of admission to the Bachelor’s program
in “Chemistry” at JKU were entitled to complete the further courses, examinations and bachelor’s
theses in accordance with § 66 para. 2 UG in the respective curriculum, the studies introductory and
orientation phase of the degree program shall be deemed to have been successfully completed
even without positive results in the particular courses referred to in para. 1 as part of the studies
introductory and orientation phase for the Bachelor’s program in “Chemistry” at JKU. This does not
imply recognition of the examinations passed in the course of studies in accordance with subpara. 1
to 6 for the examinations defined in para. 1 as part of the studies introductory and orientation phase
for the Bachelor’s program at JKU. If there is no recognition in accordance with § 78 UG, the
respective course examinations must be successfully completed separately.

§ 4 Mandatory Subjects/Modules

The following mandatory subjects have to be completed successfully:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>290GICH18</td>
<td>General and Inorganic Chemistry</td>
<td>24</td>
</tr>
<tr>
<td>290ANCH18</td>
<td>Analytical Chemistry</td>
<td>20,5</td>
</tr>
<tr>
<td>290OPCH18</td>
<td>Organic Chemistry and Polymer Chemistry</td>
<td>30,5</td>
</tr>
<tr>
<td>290PHCH18</td>
<td>Physical Chemistry</td>
<td>24,5</td>
</tr>
<tr>
<td>290CTPE18</td>
<td>Chemical Technologies and Chemical Process Engineering</td>
<td>27</td>
</tr>
<tr>
<td>290MAFS18</td>
<td>Mathematics and Fundamentals in Science</td>
<td>22,5</td>
</tr>
<tr>
<td>290GESK18</td>
<td>General Skills</td>
<td>13</td>
</tr>
</tbody>
</table>
§ 5 Courses

(1) The names and the types of all courses of the mandatory subjects, as well as their ECTS points, their duration in hours per week, their codes, their registration requirements, and their admission procedures (in case of limited availability of places) are described in the study handbook of JKU (studienhandbuch.jku.at).

(2) The possible types of courses as well as the examination regulations are described in §§ 13 and 14 of the JKU statute (Section “Studienrecht”).

(3) An industry internship performed at a company that is actively involved in the area of chemistry may be accepted as one of the courses of the Bachelor’s program in “Chemistry” up to an extent of 6 ECTS points. The student and respective course instructors must agree to the terms and conditions prior to starting the internship.

§ 6 Replacement of Subjects and Courses

Mandatory subjects according to § 4 as well as courses according to § 5 para. 1 may be replaced to a total extent of 18 ECTS points by other study specific subjects and courses upon student’s request, provided that the purpose of academic professional preparatory training is not affected and the choice of the proposed subjects and courses seems reasonable with regard to the defined aims in the qualification profile, the academic context as well as to the addition to the professional preparatory training. The application of replacing subjects and courses has to be filed by the Vice Rector of Academic Affairs.

§ 7 Bachelor’s Thesis

(1) Students of the Bachelor’s program in “Chemistry” must complete a Bachelor’s thesis according to § 80 UG in the course SE “Bachelor’s Seminar Chemistry” (290BAARBSCS18). The Bachelor’s thesis is an independent academic research paper submitted by a student in adherence to scientific and academic criteria while extending the level of a term paper in terms of quantity and quality. Students should also actively take part in a research project and the findings are to be incorporated into the Bachelor’s thesis.

(2) The Bachelor’s thesis can be completed starting with the 4th Semester and the bachelor’s thesis has to be written and presented in English.

(3) The Bachelor’s thesis will be graded in combination with the Bachelor’s Seminar by the teachers of this course.

(4) The Curricular Committee for Technical Chemistry may specify guidelines for the formal structure of a Bachelor’s thesis.

(5) The topics of the Bachelor’s thesis have to be documented in the certificate.
§ 8 Examination Regulations

(1) The regulations for subject examinations and course examinations performed at JKU are described in the study handbook of JKU (studienhandbuch.jku.at).

(2) The Bachelor’s program in "Chemistry" is concluded by a Bachelor’s Examination, which consists of the successful completion of the mandatory subjects according to § 4. In order to graduate students must also receive a passing grade for their Bachelor’s thesis as well as for the free electives examinations.

§ 9 Academic Degree

(1) Graduates of the Bachelor’s program in "Chemistry" are awarded the academic degree „Bachelor of Science“, abbreviated „BSc“ oder „BSc (JKU)“.

(2) The certificate about the academic degree is issued in German and in English translation.

§ 10 Legal Validity

(1) This curriculum will come into effect on October 1, 2018.

(2) The curriculum of the Bachelor’s program "Technische Chemie" in the version published in the official newsletter of the Johannes Kepler University Linz on June 23, 2017, 33rd piece, item 271 expires by the end of September 30, 2018 with the exception of the transitional arrangements unless otherwise specified below.

§ 11 Transitional Arrangements

(1) Students already enrolled in the Bachelor’s program 2012 in the currently valid version as before October 1, 2018 are entitled to continue with this program until September 30, 2019. However, from winter term 2018/19, semesters 1 - 4 of the suggested order of study will be governed by the curriculum introduced on October 1, 2018. Any courses no longer offered from the Bachelor’s program 2012 in the currently valid version must be substituted with the equivalent courses as listed in the study handbook. Students who do not complete the Bachelor’s program 2012 by September 30, 2019, will automatically be subject to completing the program in accordance to the Bachelor’s program 2018.

(2) Students enrolled in the Bachelor’s program 2012 in the currently valid version can opt for switching to the Bachelor’s program 2018 taking para. 3 into account.

(3) The equivalence between courses of the Bachelor’s program 2012 in the currently valid version and courses of the Bachelor’s program 2018 is described in the study handbook of JKU (studienhandbuch.jku.at). In addition to the equivalences given in the study handbook of JKU the following equivalences are effective:

<table>
<thead>
<tr>
<th>Package of subjects in the Bachelor Technische Chemie version of 2017</th>
<th>equivalent package of subjects in the Bachelor Chemistry version of 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>9_BS_Chemistry</td>
<td>Seite 7 von 9</td>
</tr>
<tr>
<td>Version V.9</td>
<td>Inkrafttreten: 01.10.2018</td>
</tr>
<tr>
<td>Studienprogramm</td>
<td>ECTS</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
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</tr>
<tr>
<td>290AACH12: Allgemeine und Anorganische Chemie</td>
<td>(27 ECTS)</td>
</tr>
<tr>
<td>290ANCH12: Analytische Chemie</td>
<td>(26,5 ECTS)</td>
</tr>
<tr>
<td>290OCPC16: Organische Chemie und Polymerchemie</td>
<td>(29,4 ECTS)</td>
</tr>
<tr>
<td>290PHCH12: Chemische Technologien und Verfahrenstechnik</td>
<td>(22,2 ECTS)</td>
</tr>
<tr>
<td>290MANA16: Mathematik und naturwissenschaftliche Grundlagen</td>
<td>(19,6 ECTS)</td>
</tr>
<tr>
<td>290SOSK12: Soft Skills, Recht, Genderfragen</td>
<td>(10,9 ECTS)</td>
</tr>
<tr>
<td>290BAAR12: Bachelor Arbeit</td>
<td>(9,9 ECTS)</td>
</tr>
<tr>
<td>290FRST12: Freie Studienleistungen</td>
<td>(12 ECTS)</td>
</tr>
<tr>
<td>290GICH18: General and Inorganic Chemistry</td>
<td>(24 ECTS)</td>
</tr>
<tr>
<td>290ANCH18: Analytical Chemistry</td>
<td>(20,5 ECTS)</td>
</tr>
<tr>
<td>290OCPC18: Organic Chemistry and Polymer Chemistry</td>
<td>(30,5 ECTS)</td>
</tr>
<tr>
<td>290CTPE18: Chemical Technologies and Chemical Process Engineering</td>
<td>(27 ECTS)</td>
</tr>
<tr>
<td>290MAFS18: Mathematics and Fundamentals in Science</td>
<td>(22,5 ECTS)</td>
</tr>
<tr>
<td>290GESK18: General Skills</td>
<td>(13 ECTS)</td>
</tr>
<tr>
<td>220BAAR18: Bachelor's Thesis</td>
<td>(9 ECTS)</td>
</tr>
<tr>
<td>290FRST18: Free Electives</td>
<td>(9 ECTS)</td>
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</tbody>
</table>
### Annex 1: Global map of study subjects - Bachelor's Program "Chemistry" (2018)

<table>
<thead>
<tr>
<th>Subject/Course</th>
<th>ECTS</th>
<th>Subject/Course</th>
<th>ECTS</th>
<th>Subject/Course</th>
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<th>Subject/Course</th>
<th>ECTS</th>
<th>Subject/Course</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester (WS)</strong></td>
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<tr>
<td>General and Inorganic Chemistry</td>
<td>12.5</td>
<td>General and Inorganic Chemistry</td>
<td>6.5</td>
<td>Analytical Chemistry</td>
<td>3</td>
<td>Organic Chemistry and Polymer Chemistry</td>
<td>5</td>
<td>Analytical Chemistry</td>
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<tr>
<td>Introduction to General Chemistry</td>
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<tr>
<td>Chemical Calculations</td>
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<td>Introductory Lab Course</td>
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<td>Inorganic Chemistry I</td>
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<td>Analytical Chemistry</td>
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<td>Analytical Chemistry</td>
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<td>Organic Chemistry and Polymer Chemistry</td>
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<td>Physical Chemistry</td>
<td>15.5</td>
<td>Organic Chemistry and Polymer Chemistry</td>
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<td>Analytical Chemistry</td>
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<tr>
<td>Analytical Chemistry</td>
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<td>Analytical Chemistry</td>
<td>10.5</td>
<td>Chemical Technologies and Process Engineering</td>
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<td>Chemical Technologies and Process Engineering</td>
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<td>General Skills</td>
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<td>Analytical Chemistry</td>
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<td>Introduction to Analytical Chemistry</td>
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<td>Analytical Chemistry</td>
<td>4.5</td>
<td>Physical Chemistry</td>
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<tr>
<td>Organic Chemistry and Polymer Chemistry</td>
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<td>Organic Chemistry and Polymer Chemistry</td>
<td>4.5</td>
<td>Physical Chemistry</td>
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<tr>
<td>Introduction to Organic Chemistry</td>
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