

Chemical Biology, M Sc in Engineering

300 credits

Civilingenjör i kemisk biologi – med valbar utgång till
naturvetenskaplig kandidat

6CKEB

Valid from: 2016 Autumn semester

Determined by

Board of Studies for Chemistry, Biology
and Biotechnology

Date determined

2016-01-19

Entry requirements

Degree in Swedish

Civilingenjör 300 hp och Teknologie master 120 hp

Curriculum

Semester 2 (Spring 2017)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|------------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| NBIA24 | Genetics | 6 | G1X | 2/3 | C |
| NBIA25 | Cell Biology | 6 | G1X | 1/3 | C |
| TATA41 | Calculus in One Variable 1 | 6 | G1F | 4 | C |
| TGTU35 | Introduction to University Studies | 2* | G1X | - | V |
| Period 2 | | | | | |
| NBIA23 | Microbiology | 6 | G1X | 1/3 | C |
| TATA42 | Calculus in One Variable 2 | 6 | G1F | 2 | C |
| TGTU35 | Introduction to University Studies | 2* | G1X | - | V |

Semester 3 (Autumn 2017)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|-------------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TATA16 | Linear Algebra | 6* | G1N | 4 | C |
| TDDD87 | Programming and Problem Solving | 6 | G1X | 2 | C |
| TFKE06 | Organic Chemistry 2 | 6 | G1X | 1/3 | C |
| Period 2 | | | | | |
| NBIB45 | Principles in Physiology and Ethics | 6 | G1F | 1 | C |
| TATA16 | Linear Algebra | 6* | G1N | 3 | C |
| TFYA16 | Engineering Mechanics | 6 | G1X | 4 | C |

Semester 4 (Spring 2018)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|-----------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TATA83 | Calculus, several variables | 6 | G1F | 1 | C |
| TFKE43 | Spectroscopy and Kinetics | 6 | G1X | 3 | C |
| TFYY55 | Physics | 6* | G2X | 2 | C |
| Period 2 | | | | | |
| NBIC52 | Molecular Genetics | 6 | G2X | 2 | C |
| TFKE36 | Biochemistry 2 | 6 | G2X | 1/4 | C |
| TFYY55 | Physics | 6* | G2X | 3 | C |
| TPTE06 | Industrial Placement | 6 | G1X | - | E |

Semester 5 (Autumn 2018)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TFKE37 | Biological Measurements | 6 | G2X | 1/2/3 | C |
| TFKE38 | Gene Technology | 3 | G2X | 1/2/3 | C |
| TFKE60 | Project Course, Chemical Biology | 6* | G2X | 1/2/3 | C |
| TFTB45 | Bioinformatics | 3 | G2F | 4 | C |
| Period 2 | | | | | |
| TFKE17 | Physical Chemistry | 6 | G1X | 3 | C |
| TFKE60 | Project Course, Chemical Biology | 6* | G2X | 1 | C |
| TSRT03 | Biological Automatic Control | 6 | G2X | 4 | C |

Semester 6 (Spring 2019)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TAMS28 | Mathematical Statistics, First Course | 6 | G2X | 4 | C |
| TBMT37 | Models in System Biology | 2 | G2F | 3 | C |
| TFKE46 | Protein Chemistry | 6 | A1X | 1/2 | C |
| TFKE55 | Protein Engineering and Project Management, Bachelor Project | 16* | G2X | 1/2 | C |
| Period 2 | | | | | |
| TFKE55 | Protein Engineering and Project Management, Bachelor Project | 16* | G2X | 1/2/3/4 | C |

Semester 7 (Autumn 2019)

Specialisation: Industrial biotechnology and Production

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TANA21 | Scientific Computing | 6 | G1F | 3 | E |
| TAOP88 | Engineering Optimization | 6 | G2F | 1 | E |
| TATM38 | Mathematical Models in Biology | 6 | A1N | 3 | E |
| TEAE01 | Industrial Economics, Basic Course | 6 | G1X | 2 | E |
| TGTU91 | Oral and Written Communication | 6 | G1F | 2 | E |
| THEN18 | English | 6* | G1X | 4 | E |
| THFR05 | Communicative French | 6* | G1X | 4 | E |
| THSP05 | Spanish | 6* | G1X | 4 | E |
| THTY05 | German | 6* | G1X | 4 | E |
| TKMJ31 | Biofuels for Transportation | 6 | A1N | 1 | E |
| TVMB17 | Immunobiology and Immunological Techniques | 6 | G2X | 1/2 | E |
| Period 2 | | | | | |
| TAMS41 | Statistical Modelling with Regression Methods | 6 | A1N | 3 | C |
| TFYA32 | Industrial Biotechnology | 6 | A1X | 1 | C |
| TFKE30 | Analytical Chemistry | 6 | G1X | 4 | E |
| THEN18 | English | 6* | G1X | 4 | E |
| THFR05 | Communicative French | 6* | G1X | 4 | E |
| THSP05 | Spanish | 6* | G1X | 4 | E |
| THTY05 | German | 6* | G1X | 4 | E |
| TKMJ24 | Environmental Engineering | 6 | G1N | 3 | E |
| TMMS07 | Biomechanics | 6 | A1X | 4 | E |

Specialisation: Protein Science and Technology

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TFKE57 | Proteomics | 6 | A1X | 3 | C |
| TANA21 | Scientific Computing | 6 | G1F | 3 | C/E |
| TAOP88 | Engineering Optimization | 6 | G2F | 1 | C/E |
| TEAE01 | Industrial Economics, Basic Course | 6 | G1X | 2 | C/E |
| TFKE33 | Life Scientific Research Review | 6* | A1X | 4 | E |
| TGTU91 | Oral and Written Communication | 6 | G1F | 2 | E |
| THEN18 | English | 6* | G1X | 4 | E |
| THFR05 | Communicative French | 6* | G1X | 4 | E |
| THSP05 | Spanish | 6* | G1X | 4 | E |
| THTY05 | German | 6* | G1X | 4 | E |
| TVMB17 | Immunobiology and Immunological Techniques | 6 | G2X | 1/2 | E |
| Period 2 | | | | | |
| TAMS41 | Statistical Modelling with Regression Methods | 6 | A1N | 3 | C |
| TFKE35 | Biostructural Technologies | 6 | A1X | 2 | C |
| TFKE33 | Life Scientific Research Review | 6* | A1X | 4 | E |
| TFKE48 | Biomolecular Disease Processes | 6 | A1X | 1 | E |
| TFYA32 | Industrial Biotechnology | 6 | A1X | 1 | E |
| TGTU49 | History of Technology | 6 | G1F | 3 | E |
| THEN18 | English | 6* | G1X | 4 | E |
| THFR05 | Communicative French | 6* | G1X | 4 | E |
| THSP05 | Spanish | 6* | G1X | 4 | E |
| THTY05 | German | 6* | G1X | 4 | E |

Semester 8 (Spring 2020)

Specialisation: Industrial biotechnology and Production

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TFTB32 | Design of Biotechnical Process and Production Systems, Project Course | 6* | A1X | 1 | C |
| TMMT03 | Biotechnical Production Systems | 6 | A1X | 3 | C |
| TMQU46 | Quality Management | 6 | G2X | 4 | C |
| TBMI26 | Neural Networks and Learning Systems | 6 | A1N | 2 | E |
| TDDE10 | Object Oriented Programming in Java | 6 | G2F | 1 | E |
| TFYA85 | Alternative Energy Sources and their Applications | 6 | G2X | 4 | E |
| TGTU94 | Technology and Ethics | 6 | G1F | 1 | E |
| TKMJ15 | Environmental Management Strategies | 6 | G1F | 3 | E |
| TSRT07 | Industrial Control Systems | 6 | A1N | 2 | E |
| Period 2 | | | | | |
| NKED20 | Drug Discovery and Pharmaceutical Development | 6 | A1N | 2 | C |
| TFTB32 | Design of Biotechnical Process and Production Systems, Project Course | 6* | A1X | 1 | C |
| TFTB39 | Biotechnology Manufacturing | 6 | A1X | 3/4 | C |
| NKED82 | Biomolecular Design | 6 | A1X | 1 | E |
| TGTU95 | Philosophy of Science and Technology | 6 | G1F | 4 | E |

Specialisation: Protein Science and Technology

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TFKE58 | Applied Structural Biology | 6* | A1X | 2 | C |
| TFTB34 | Biosensor Technology | 6 | A1X | 3 | C |
| TMQU46 | Quality Management | 6 | G2X | 4 | C/E |
| NBID64 | Molecular Physiology and Cell Signaling Mechanisms | 6 | A1N | 2 | E |
| TBMI26 | Neural Networks and Learning Systems | 6 | A1N | 2 | E |
| TDDE10 | Object Oriented Programming in Java | 6 | G2F | 1 | E |
| TFTB35 | Surface Science | 6 | A1X | 1 | E |
| TFYA85 | Alternative Energy Sources and their Applications | 6 | G2X | 4 | E |
| TGTU94 | Technology and Ethics | 6 | G1F | 1 | E |
| TSRT07 | Industrial Control Systems | 6 | A1N | 2 | E |
| Period 2 | | | | | |
| TFKE58 | Applied Structural Biology | 6* | A1X | 4 | C |
| TFKE61 | Industrial Enzyme Technology | 6 | A1X | 3 | C |
| NKED20 | Drug Discovery and Pharmaceutical Development | 6 | A1N | 2 | C/E |
| NKED82 | Biomolecular Design | 6 | A1X | 1 | C/E |
| TGTU95 | Philosophy of Science and Technology | 6 | G1F | 4 | E |

Semester 9 (Autumn 2020)

Specialisation: Industrial biotechnology and Production

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TAMS81 | Experimental Design | 6 | A1F | 4 | C |
| TEIO94 | Entrepreneurship and Idea Development | 6* | G2X | 3 | C |
| TDDE18 | Programming C++ | 6* | G2F | 2 | E |
| TEIO90 | Innovation Management | 6 | A1N | 2 | E |
| TFTB46 | Advanced Bioinformatics | 6 | A1X | 2 | E |
| TFYA47 | Surfaces and Interfaces | 6 | A1X | 2 | E |
| TRTE18 | The Biogas Process | 6 | A1N | 1 | E |
| TSRT92 | Modelling and Learning for Dynamical Systems | 6 | A1X | 3 | E |
| TVMB26 | Molecular Virology | 6 | A1X | 1 | E |
| Period 2 | | | | | |
| TEIO94 | Entrepreneurship and Idea Development | 6* | G2X | 4 | C |
| TAOP61 | Optimization of Realistic Complex Systems | 6 | A1N | 3 | E |
| TDDE18 | Programming C++ | 6* | G2F | 1 | E |
| TGTU04 | Leadership | 6 | G2X | 2 | E |
| TGTU49 | History of Technology | 6 | G1F | 3 | E |
| TMQU12 | Lean Production | 6 | A1X | 2 | E |
| TVCB13 | Stem Cell Engineering | 6 | A1X | 3 | E |

Specialisation: Protein Science and Technology

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TEIO94 | Entrepreneurship and Idea Development | 6* | G2X | 3 | C |
| TFTB46 | Advanced Bioinformatics | 6 | A1X | 2 | C |
| TAMS81 | Experimental Design | 6 | A1F | 4 | C/E |
| TATM38 | Mathematical Models in Biology | 6 | A1N | 3 | C/E |
| TEAE01 | Industrial Economics, Basic Course | 6 | G1X | 2 | C/E |
| TSRT92 | Modelling and Learning for Dynamical Systems | 6 | A1X | 3 | C/E |
| TKMJ24 | Environmental Engineering | 6 | G1N | 1 | E |
| TRTE18 | The Biogas Process | 6 | A1N | 1 | E |
| TVMB26 | Molecular Virology | 6 | A1X | 1 | E |
| Period 2 | | | | | |
| TEIO94 | Entrepreneurship and Idea Development | 6* | G2X | 4 | C |
| TGTU04 | Leadership | 6 | G2X | 2 | C/E |
| TAOP61 | Optimization of Realistic Complex Systems | 6 | A1N | 3 | E |
| TFKE30 | Analytical Chemistry | 6 | G1X | 4 | E |
| TFYA30 | Supramolecular Chemistry | 6 | A1N | 2 | E |
| TVCB13 | Stem Cell Engineering | 6 | A1X | 3 | E |

Semester 10 (Spring 2021)

Specialisation: Industrial biotechnology and Production

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TQXX33 | Degree project - Master's Thesis | 30* | A1X | - | C |
| Period 2 | | | | | |
| TQXX33 | Degree project - Master's Thesis | 30* | A1X | - | C |

Specialisation: Protein Science and Technology

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TQXX33 | Degree project - Master's Thesis | 30* | A1X | - | C |
| Period 2 | | | | | |
| TQXX33 | Degree project - Master's Thesis | 30* | A1X | - | C |

ECV = Elective / Compulsory / Voluntary

*The course is divided into several semesters and/or periods