

# Chemical Biology, M Sc in Engineering

300 credits

Civilingenjör i kemisk biologi - med valbar utgång till  
naturvetenskaplig kandidat

6CKEB

Valid from: 2014 Spring semester

**Determined by**

Board of Studies for Chemistry, Biology  
and Biotechnology

**Date determined**

## Entry requirements

### Degree in Swedish

Civilingenjör 300 hp och Teknologie master 120 hp alt. Naturvetenskaplig kandidat, 180 hp

## Curriculum

### Semester 6 (Spring 2017)

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

### Semester 7 (Autumn 2017)

*Specialisation: Industrial Biotechnology and Production*

| Course code     | Course name                                | Credits | Level | Timetable module | ECV |
|-----------------|--------------------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                            |         |       |                  |     |
| TVCB12          | Genome Analysis                            | 6       | A1X   | 4                | C   |
| TANA21          | Scientific Computing                       | 6       | G1X   | 3                | C/E |
| TAOP88          | Engineering Optimization                   | 6       | G2X   | 1                | C/E |
| TATM38          | Mathematical Models in Biology             | 6       | A1X   | 3                | C/E |
| TEAE01          | Industrial Economics, Basic Course         | 6       | G1X   | 2                | E   |
| TGTU91          | Oral and Written Communication             | 6       | G1X   | 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       | A1X   | 1                | E   |
| TVMB17          | Immunobiology and Immunological Techniques | 6       | G2X   | 1/2              | E   |
| <b>Period 2</b> |                                            |         |       |                  |     |
| TAMS38          | Experimental Design and Biostatistics      | 6       | A1X   | 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       | G1X   | 3                | E   |
| TMMS07          | Biomechanics                               | 6       | A1X   | 4                | E   |

*Specialisation: Protein Science and Technology*

| Course code     | Course name                                | Credits | Level | Timetable module | ECV |
|-----------------|--------------------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                            |         |       |                  |     |
| TFKE57          | Proteomics                                 | 6       | A1X   | 3                | C   |
| TANA21          | Scientific Computing                       | 6       | G1X   | 3                | C/E |
| TAOP88          | Engineering Optimization                   | 6       | G2X   | 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       | G1X   | 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   |
| <b>Period 2</b> |                                            |         |       |                  |     |
| TAMS38          | Experimental Design and Biostatistics      | 6       | A1X   | 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 2018)

### *Specialisation: Industrial Biotechnology and Production*

| Course code     | Course name                                                           | Credits | Level | Timetable module | ECV |
|-----------------|-----------------------------------------------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                                                       |         |       |                  |     |
| 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       | A1X   | 2                | E   |
| TFYA85          | Alternative Energy Sources and their Applications                     | 6       | G2X   | 4                | E   |
| TGTU01          | Technology and Ethics                                                 | 6       | G1X   | 1                | E   |
| TSRT07          | Industrial Control Systems                                            | 6       | A1X   | 2                | E   |
| <b>Period 2</b> |                                                                       |         |       |                  |     |
| NKED20          | Drug discovery and Pharmaceutical Development                         | 6       | A1X   | 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   |

*Specialisation: Protein Science and Technology*

| Course code     | Course name                                        | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                                    |         |       |                  |     |
| TFKE58          | Applied Structural Biology                         | 6*      | A1X   | 3                | C   |
| TFTB34          | Biosensor Technology                               | 6       | A1X   | 2                | 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       | A1X   | 2                | E   |
| TFTB35          | Surface Science                                    | 6       | A1X   | 1                | E   |
| TFYA85          | Alternative Energy Sources and their Applications  | 6       | G2X   | 4                | E   |
| TGTU01          | Technology and Ethics                              | 6       | G1X   | 1                | E   |
| TSRT07          | Industrial Control Systems                         | 6       | A1X   | 2                | E   |
| <b>Period 2</b> |                                                    |         |       |                  |     |
| TFKE56          | Industrial Enzyme Engineering                      | 6       | A1X   | 3                | C   |
| TFKE58          | Applied Structural Biology                         | 6*      | A1X   | 4                | C   |
| NKED20          | Drug discovery and Pharmaceutical Development      | 6       | A1X   | 2                | C/E |
| NKED82          | Biomolecular Design                                | 6       | A1X   | 1                | C/E |
| TGTU76          | Philosophy of Science                              | 6       | G1X   | 4                | E   |

## Semester 9 (Autumn 2018)

### *Specialisation: Industrial Biotechnology and Production*

| Course code     | Course name                                   | Credits | Level | Timetable module | ECV |
|-----------------|-----------------------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                               |         |       |                  |     |
| TEIO20          | Entrepreneurship and New Business Development | 6*      | G2X   | 3                | C   |
| TSRT62          | Modelling and Simulation                      | 6       | A1X   | 3                | C/E |
| TDDC76          | Programming and Data Structures               | 8*      | G2X   | 2                | E   |
| TEIO90          | Innovation Management                         | 6       | A1X   | 2                | E   |
| TFTB46          | Advanced Bioinformatics                       | 6       | A1X   | 2                | E   |
| TFYA47          | Surfaces and Interfaces                       | 6       | A1X   | 2                | E   |
| TRTE18          | The Biogas Process                            | 6       | A1X   | 1                | E   |
| TVMB26          | Molecular Virology                            | 6       | A1X   | 1                | E   |
| <b>Period 2</b> |                                               |         |       |                  |     |
| TEIO20          | Entrepreneurship and New Business Development | 6*      | G2X   | 4                | C   |
| TAOP61          | Optimization of Realistic Complex Systems     | 6       | A1N   | 3                | E   |
| TDDC76          | Programming and Data Structures               | 8*      | G2X   | 2                | E   |
| TGTU04          | Leadership                                    | 6       | G2X   | 2                | E   |
| TGTU49          | History of Technology                         | 6       | G1X   | 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 |
|-----------------|-----------------------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                               |         |       |                  |     |
| TEIO20          | Entrepreneurship and New Business Development | 6*      | G2X   | 3                | C   |
| TFTB46          | Advanced Bioinformatics                       | 6       | A1X   | 2                | C   |
| TATM38          | Mathematical Models in Biology                | 6       | A1X   | 3                | C/E |
| TEAE01          | Industrial Economics, Basic Course            | 6       | G1X   | 2                | C/E |
| TSRT62          | Modelling and Simulation                      | 6       | A1X   | 3                | C/E |
| TRTE18          | The Biogas Process                            | 6       | A1X   | 1                | E   |
| TVMB26          | Molecular Virology                            | 6       | A1X   | 1                | E   |
| <b>Period 2</b> |                                               |         |       |                  |     |
| TEIO20          | Entrepreneurship and New Business 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       | A1X   | 1                | E   |
| TKMJ24          | Environmental Engineering                     | 6       | G1N   | 3                | E   |
| TVCB13          | Stem Cell Engineering                         | 6       | A1X   | 3                | E   |

**Semester 10 (Spring 2019)**

*Specialisation: Industrial Biotechnology and Production*

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

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

ECV = Elective / Compulsory / Voluntary

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