| Year 1 Semester 1 | CHEM1010 Introductory Chemistry I | ENGG1003 Introduction to Procedural Programming | ENGG1500 Introduction to Professional Engineering | MATH1110* Mathematics for Engineering, Science and Technology 1 OR MATH1210 Mathematical Discovery 1 CORE | CHEE2325 Thermodynamics of Chemical Processes | CHEE2945 Particle and Resources Engineering | ENGG2500 Sustainable Engineering Practice | MATH2340* Linearity and Continuity (Alternative pathway) CORE OR ELECTIVE (Standard pathway) | CHEE1000 Chemical Engineering Principles | CHEM1020 Introductory Chemistry II | MATH1120 Mathematics for Engineering, Science and Technology 2 OR MATH1220 Mathematical Discovery 2 CORE | PHYS1210** Advanced Physics 1 |
| Year 1 Semester 2 | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE |
| Year 2 Semester 1 | CHEE1000 Chemical Engineering Principles | CORE | MATH1120 Mathematics for Engineering, Science and Technology 2 OR MATH1220 Mathematical Discovery 2 CORE | MATH1800 Mathematical Modelling | CHEE2315 Fluid Mechanics for Chemical Engineers | CHEE2695 Energy Transfer and Technologies | ELECTIVE | CORE | CORE | CORE | CORE |
| Year 2 Semester 2 | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE |
| Year 3 Semester 1 | CHEE3735 Mass Transfer Processes | ENGG3500 Managing Engineering Projects | MATH2310 Calculus of Science and Engineering | DIRECTED 2000 level | CHEE2825 Chemical Engineering Laboratory 1 | CHEE2935 Sustainable Engineering Practices | MATH2320 Linear Algebra | STAT2010 Fundamentals of Statistics | CHEE2315 Fluid Mechanics for Chemical Engineers | CHEE2695 Energy Transfer and Technologies | ELECTIVE | MATH1800 Mathematical Modelling |
| Year 3 Semester 2 | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE |
| Year 4 Semester 1 | CHEE3325 Chemical Reactor Design | CHEE3425 Chemical Process Safety | CHEE4475 Dynamic Process Simulations and Control | DIRECTED 3000 level | CHEE3745 Process Modelling and Separation Processes | CHEE3825 Chemical Engineering Laboratory 2 | DIRECTED 3000 level | DIRECTED 3000 level | CHEE4945A Chemical Engineering Design A | CHEE4975A Chemical Engineering Research A | DIRECTED 3000 level | DIRECTED 3000 level |
| Year 4 Semester 2 | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE |
| Year 5 Semester 1 | CHEE4945B Chemical Engineering Design B | CHEE4975B Chemical Engineering Research B | ENGG4500 Engineering Complexity | ELECTIVE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE |
| Year 5 Semester 2 | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE | CORE |

This Program Plan is an enrolment guide to ensure you are on track to graduate. If at any time you wish to vary from this program plan seek advice from your Program Advisor to ensure you remain on track.

If you have any questions visit [NEWCASTLE.EDU.AU/ASKUON](NEWCASTLE.EDU.AU/ASKUON)
To be eligible to graduate make sure you have completed 400 units (10 units = 1 course unless otherwise specified) which meet the following criteria:

- Core courses – 320 units
  * Enrolment in MATH courses is based on your assumed knowledge. To find out which MATH courses you should enrol in please see the Enrolling in Maths information. More information in your Program Handbook.

- ** PHYS courses. Students may count PHYS1205 in lieu of PHYS1210 with Program Convenor approval.

- If you are undertaking the Standard MATH1210 and MATH1220 Pathway, you will complete the following:
  - 50 units of directed courses (10 units at a 2000 level and 40 units at a 3000 level, including at least one of MATH3120, MATH3170, MATH3840 and MATH3850)
  - 40 units of electives courses. Visit the Course Handbook to see a list of available Electives.

- If you are undertaking the Alternative MATH1110 and MATH1120 Pathway, you will complete the following:
  - 10 units of core course - MATH2340;
  - 50 units of directed courses (10 units at a 2000 level and 40 units at a 3000 level, including at least one of MATH3120, MATH3170, MATH3840 and MATH3850)
  - 30 units of electives courses. Visit the Course Handbook to see a list of available Electives.

- Students must not exceed 120 units at 1000 level in this program.
- It is also a requirement that students complete a total of 12 weeks of industrial experience.
- The duration of this program is 5 year full-time (40 units per semester) or part-time equivalent.
- The maximum time to complete this program is 12 years.

Some courses have assumed knowledge and/or requisites, please refer to the individual Course Handbook. Please refer to the Program Handbook for specific information on program structure. If you are intending varying from this program plan please seek advice from your Program Advisor.
# Program Plan

## Bachelor of Chemical Engineering (Honours)/Bachelor of Mathematics

### Mathematics and Statistics Major

**Directed Courses**

Complete 10 units from this list of Mathematics 2000 level directed courses:

- MATH2330 Analysis
- STAT2000 Applied Statistics and Research Methods

**Directed Courses**

Complete 40 units from this list of Mathematics 3000 level directed courses, including at least one of either MATH3120, MATH3170, MATH3840 or MATH3850:

- MATH3120 Algebra
- MATH3170 Number Theory
- MATH3180 Topology (Not currently offered)
- MATH3205 Fourier Analysis
- MATH3210 Directed Studies in Mathematics
- MATH3242 Complex Analysis
- MATH3400 Research Topics in Mathematics
- MATH3510 Combinatorics and Graph Theory (Not currently offered)
- MATH3700 Advanced Differential Equations
- MATH3800 Optimisation *(replaces MATH3830)*
- MATH3820 Numerical Methods
- MATH3840 Optimisation in Business and Industry (Not currently offered)
- MATH3850 Industrial Project (Not currently offered)
- STAT3010 Statistical Inference
- STAT3030 Generalised Linear Models
- STAT3040 Time Series Analysis
- STAT3100 Systems Thinking for an Integrated Workforce
- STAT3120 Applied Bayesian Methods
- STAT3170 Surveys and Experiments
- STAT3990 Topics in Statistics