Bachelor of Mathematical and Computer Sciences

These Program Rules should be read in conjunction with the University's policies (http://www.adelaide.edu.au/policies).

1 General

There shall be a degree of Bachelor of Mathematical and Computer Sciences and an Honours degree of Bachelor of Mathematical and Computer Sciences. A candidate may obtain either degree or both.

2 Duration of program

The program of study for the Bachelor degree shall extend over three years of full-time study or the equivalent part-time study.

3 Assessment and examinations

3.1 A candidate shall not be eligible to attend for examination unless the prescribed work has been completed to the satisfaction of the teaching staff concerned.

3.2 In determining a candidate's final result in a course (or part of a course) the examiners may take into account oral, written, practical and other work, provided that the candidate has been given adequate notice at the commencement of the teaching of the course of the way in which such work will be taken into account and of its relative importance in the final result.

3.3 There shall be four classifications of pass in the final assessment of any course for the Bachelor degree, as follows: Pass with High Distinction, Pass with Distinction, Pass with Credit, Pass.

3.4 A candidate who fails a course for the Bachelor degree and who desires to take that course again shall, unless exempted wholly or partially there from by the Head of the School concerned, again complete the required work in that course to the satisfaction of the teaching staff concerned.

3.5 A candidate who has twice failed any course for the Bachelor degree may not enrol for that course again or for any other course which in the opinion of the Faculty contains a substantial amount of the same material, except by permission of the Faculty and then only under such conditions as the Faculty may prescribe.

4 Qualification requirements

4.1 General: Bachelor of Mathematical and Computer Sciences

4.1.1 To qualify for the Bachelor degree a candidate shall, subject to the conditions and modifications specified under 3.3 above, pass courses from 4.2 below to the value of at least 72 units which satisfy the following requirements:

a A candidate shall pass in Mathematical and Computer Sciences courses to the value of at least 36 units, of which courses to the value of at least 12 units shall be Level III Mathematical and Computer Sciences courses.

b A candidate shall present either

MATHS 1011 Mathematics IA
and
MATHS 1012 Mathematics IB

or

MATHS 1013 Mathematics IM
and
MATHS 1011 Mathematics IA
and
MATHS 1012 Mathematics IB

for the degree, obtaining a Pass standard or higher for each course presented.

c A candidate shall pass Level I courses to the value of at least 18 units

d A candidate shall pass Level II courses to the value of at least 21 units

e A candidate shall pass Level II and Level III courses to a minimum value of 45 units, with at least 21 units being Level III courses, including MATHS 3015 Communication Skills III.

4.1.2 A candidate who has been previously enrolled in an Engineering degree and who has presented the following courses toward a Bachelor of Engineering degree may present them as Mathematical and Computer Sciences courses:

CHEM ENG 1002 Engineering Computing 3

CHEM ENG 1008 Engineering Computing 3

STATS 2004 Laplace Transforms & Probability & Statistical Methods 2

APP MTH 2000 Differential Equations & Fourier Series 2

APP MTH 2002 Vector Analysis & Complex Analysis 2

MATHS 2201 Engineering Mathematics I 3

MATHS 2202 Engineering Mathematics II 3

In addition, such a candidate may present Level I and II Engineering courses that are not listed under 4.2.1 and 4.2.2 of these Academic Program Rules. These courses do not count as Mathematical and Computer Sciences courses.

Note (not forming part of the Academic Program Rules)

This clause enables Engineering students to complete the first three years of their program and to qualify for the B.Ma.&Comp.Sc. within four years, by fulfilling the requirements of 4.1.6. Students wishing to qualify for the B.Ma.&Comp.Sc. in this way must apply for admission to the B.Ma&Comp.Sc. program.

4.1.3 Except with the permission of the Faculty, a candidate may pass or be enrolled in no more than 18 units of courses offered by Schools other than the School of Mathematical Sciences and the School of Computer Science before passing at least two out of MATHS 1013 Mathematics IM, MATHS 1011 Mathematics IA and MATHS 1012 Mathematics IB. These courses to the value of not more than 18 units shall not include courses in which a candidate has failed or from which a candidate has withdrawn.

4.1.4 A candidate may present no more than 12 units of courses offered at Level II by the Schools of Economics and Commerce.

4.1.5 Except with the permission of the Faculty, a candidate may present courses to the value of no more than 51 units offered by Schools other than the School of Mathematical Sciences and the School of Computer Science.

4.1.6 A graduate who wishes to qualify for the degree of Bachelor of Mathematical and Computer Sciences and to count towards that degree courses which have already been presented for another degree may do so providing such a candidate presents a range of courses which fulfils the requirements of 4.1.1 above and courses to the value of at least 24 units from 4.2.2 and 4.2.3 below that have not been presented for any other degree. At least 18 of these 24 units must be at Level III and at least 12 units must be chosen from 4.2.3.1 below.

4.1.7 No candidate will be permitted to count for the degree any course together with any other course that, in the opinion of the Faculty, contains a substantial amount of the same material; and no course may be counted twice towards the degree. No candidate may present the same section of a course in more than one course for the degree.

4.1.8 Students who commenced their program of study for the degree prior to 1989 may qualify for the degree by fulfilling the requirements of the regulations and schedules in force prior to 1989, with such modifications as the Faculty may deem necessary to take account of changes to courses from 1989 onwards. Alternatively, students may complete their programs of study under present Academic Program Rules, with such modifications as the Faculty may deem necessary to ensure that courses validly passed under previous regulations and schedules may be counted under the present Rules. For the purposes of this clause the following equivalences will be used:

First year course 6 units at Level I

Second year course 8 units at Level II

Third year course 12 units at Level III.

4.1.9 Except with permission of the Faculty, students who have completed at another institution part of the equivalent of the requirements for the Adelaide degree of Bachelor of Mathematical and Computer Sciences will be required to complete Level III courses from 4.2.3 to the value of at least 24 units of which at least 12 units must be from 4.2.3.1.

4.1.10 With permission of the Faculty a student who has completed most of the courses for the degree of Bachelor of Mathematical and Computer Sciences at the University of Adelaide including courses from 4.2.3 to the value of at least 9 units may be permitted to complete the requirements for the degree at another institution. Applications must be made in writing to the Faculty.

4.1.11 To complete a major in a Mathematical and Computer Sciences Discipline, a candidate shall satisfy the criteria specified below and present Pass or better in the required courses:

Applied Mathematics

Level III courses offered in Applied Mathematics to the value of at least 12 units.

Computer Science

Level II courses offered in Computer Science to the value of 9 units and Level III Computer Science courses to the value of at least 12 units, including COMP SCI 3006 Software Engineering & Project.

Mathematical Sciences

Students who do not otherwise qualify for a major in Applied Mathematics, Pure Mathematics or Statistics and who have successfully completed at least 12 units of Level III courses offered across those Disciplines will qualify for the award of a major in Mathematical Sciences.

Pure Mathematics

Level III courses offered in Pure Mathematics to the value of at least 12 units.

Statistics

Level III courses in Statistics to the value of at least 12 units, including STATS 3001 Statistical Modelling III, and STATS 3006 Mathematical Statistics III, and at least 6 units chosen from:

APP MTH 3001 Applied Probability III*

APP MTH 3016 Random Processes III*

APP MTH 3020 Stochastic Decision Theory III*

STATS 3003 Sampling Theory and Practice III

STATS 3005 Time Series III

STATS 3008 Biostatistics III

*These courses may be presented towards a major in Statistics or a major in Applied Mathematics but not both.

4.1.12 To complete a double major in Mathematical Sciences Disciplines, a candidate shall satisfy the criteria specified below and present Pass or better in the required courses:

Applied Mathematics and Pure Mathematics

Level III courses offered in Applied Mathematics to the value of at least 12 units and Level III courses offered in Pure Mathematics to the value of at least 9 units.

Applied Mathematics and Statistics

Level III courses offered in Applied Mathematics to the value of at least 12 units and Level III courses offered in Statistics to the value of at least 9 units including STATS 3001 Statistical Modelling III and STATS 3006 Mathematical Statistics III.

Pure Mathematics and Applied Mathematics

Level III courses offered in Pure Mathematics to the value of at least 12 units and Level III courses offered in Applied Mathematics to the value of at least 9 units.

Pure Mathematics and Statistics

Level III courses offered in Pure Mathematics to the value of at least 12 units and Level III courses offered in Statistics to the value of at least 9 units including STATS 3001 Statistical Modelling III and STATS 3006 Mathematical Statistics III.

Statistics and Applied Mathematics

Level III courses offered in Statistics to the value of at least 12 units including STATS 3001 Statistical Modelling III and STATS 3006 Mathematical Statistics III, and Level III courses offered in Applied Mathematics to the value of at least 9 units.

Statistics and Pure Mathematics

Level III courses offered in Statistics to the value of at least 12 units including STATS 3001 Statistical Modelling III and STATS 3006 Mathematical Statistics III, and Level III courses offered in Pure Mathematics to the value of at least 9 units.

4.1.13 Other Majors

Majors in other Disciplines are available, including:

Physics

Refer to rule 5.4 of the Bachelor of Science Academic Program Rules for science Discipline major requirements.

Theoretical Physics

Refer to rule 5.4 of the Bachelor of Science Academic Program Rules for science Discipline major requirements.

4.2 Program of study for the degree of Bachelor of Mathematical and Computer Sciences

Students are advised that some courses cannot be counted with others towards the degree of Bachelor of Mathematical and Computer Sciences. Notwithstanding the Academic Program Rules published in this volume, a number of the courses listed in the program leading to the degree of Bachelor of Mathematical and Computer Sciences may not be offered in every calendar year.

4.2.1 Level I courses

4.2.1.1 Mathematical & Computer Sciences courses

COMP SCI 1012 Scientific Computing 3
COMP SCI 1003 Internet Computing 3
COMP SCI 1102 Object Oriented Programming 3
COMP SCI 1009 Algorithm Design & Data Structures 3
COMP SCI 1103 Puzzle Based Learning 3
MATHS 1008 Mathematics for Information Technology I 3
MATHS 1011 Mathematics IA 3
MATHS 1012 Mathematics IB 3
MATHS 1013 Mathematics IM 3
STATS 1005 Statistical Analysis and Modelling I 3

4.2.1.2 Humanities and Social Sciences courses

Level I courses listed for the degree of B.A. and approved by the Faculty Program Adviser.

4.2.1.3 Economics and Commerce courses

Level I courses listed for the degree of B.Ec. and approved by the Faculty Program Adviser.

4.2.1.4 Law courses*

LAW 1501 Foundations of Law 3
LAW 1502 Law of Torts I 3
LAW 1504 Principles of Public Law 3
LAW 1505 Law of Torts II 3

*Available only to students who have been accepted for candidature to the LL.B.

4.2.1.5 Engineering courses*

Courses listed at Level I of the Bachelor of Engineering and approved by the Faculty Program Adviser.

*Candidates who have been previously enrolled in an Engineering degree at the University of Adelaide are also directed to Academic Program Rule 4.1.2.

4.2.1.6 Science courses

Level I Science courses listed for the degree of B.Sc. in the Faculty of Sciences.

4.2.2 Level II courses

4.2.2.1 Mathematical and Computer Sciences courses

Applied Mathematics

APP MTH 2105 Optimisation and Operations Research 3
MATHS 2104 Numerical Methods 3

Computer Science

COMP SCI 2000 Computer Systems 3
COMP SCI 2002 Database & Information Systems 3
COMP SCI 2005 Systems Programming C and C++ 3
COMP SCI 2006 Introduction to Software Engineering 3
COMP SCI 2201 Algoritha & Data Structure Analysis 3

Mathematics

MATHS 2100 Real Analysis 3
MATHS 2101 Multivariable & Complex Calculus 3
MATHS 2102 Differential Equations 3
MATHS 2103 Probability and Statistics 3

Pure Mathematics

PURE MTH 2106 Algebra 3

Statistics

STATS 2107 Statistical Modelling & Inference 3

4.2.2.2 Humanities and Social Sciences courses

Advanced Level or Level II Language courses listed for the degree of B.A. and approved by the Faculty Program Adviser.

4.2.2.3 Economics and Commerce courses

Courses listed for the degree of B.Ec; Level II courses listed for the degree of B.Com; Courses for the degree of B.Fin. All Economics and Commerce courses require the approval of the Faculty Program Adviser.

4.2.2.4 Engineering Courses

Candidates who have been previously enrolled in an Engineering degree at the University of Adelaide are directed to Academic Program Rule 4.1.4.

4.2.2.5 Law courses*

LAW 1503 Contracts 3

LAW 1506 Property Law 3

*Available only to students who have been accepted for candidature to the LL.B.

4.2.2.6 Science courses

Level II Science courses listed for the degree of B.Sc. in the Faculty of Sciences.

4.2.3 Level III courses

4.2.3.1 Mathematical and Computer Sciences courses

Applied Mathematics

APP MTH 3000 Computational Mathematics III 3

APP MTH 3001 Applied Probability III 3

APP MTH 3002 Fluid Mechanics III 3

APP MTH 3004 Mathematical Biology III 3

APP MTH 3010 Variational Methods & Optimal Control III 3

APP MTH 3012 Financial Modelling: Tools & Techniques III 3

APP MTH 3013 Differential Equations III 3

APP MTH 3014 Optimisation III 3

APP MTH 3016 Random Processes III 3

APP MTH 3017 Waves III 3

APP MTH 3019 Mathematical Modelling in Nanotechnology III 3

APP MTH 3020 Stochastic Decision Theory III 3

Computer Science

COMP SCI 3001 Computer Networks and Applications 3

COMP SCI 3002 Programming Techniques 3

COMP SCI 3004 Operating Systems 3

COMP SCI 3005 Computer Architecture 3

COMP SCI 3006 Software Engineering & Project 3

COMP SCI 3007 Artificial Intelligence 3

COMP SCI 3009 Advanced Programming Paradigms 3

COMP SCI 3012 Distributed Systems 3

COMP SCI 3013 Event Driven Computing 3

COMP SCI 3014 Computer Graphics 3

Pure Mathematics

PURE MTH 3002 Topology and Analysis III 3

PURE MTH 3003 Number Theory III 3

PURE MTH 3007 Groups and Rings III 3

PURE MTH 3009 Integration and Analysis III 3

PURE MTH 3012 Fields and Geometry III 3

PURE MTH 3018 Coding and Cryptology III 3

PURE MTH 3019 Complex Analysis III 3

PURE MTH 3020 Methods of Modern Mathematics III 3

PURE MTH 3021 Logic and Computability 3

PURE MTH 3022 Geometry of Surfaces III 3

PURE MTH 3023 Fields and Modules III 3

PURE MTH 3024 Finite Geometry III 3

Statistics

STATS 3001 Statistical Modelling III 3

STATS 3003 Sampling Theory & Practice III 3

STATS 3005 Time Series III 3

STATS 3006 Mathematical Statistics III 3

STATS 3008 Biostatistics III 3

4.2.3.2 Miscellaneous (non Maths & Comp Sc courses)

MATHS 3015 Communication Skills III 3

4.2.3.3 Humanities and Social Sciences courses

Advanced Level or Level III Language courses listed for the degree of B.A, and approved by the Faculty Program Adviser.

4.2.3.4 Economics and Commerce courses

Courses listed for the degree of B.Ec; Level III courses listed for the degree of B.Com; courses listed for the degree of B.Fin. All Economics and Commerce courses require the approval of the Faculty Program Adviser.

4.2.3.5 Law courses*

LAW 2501 Australian Constitutional Law 3

LAW 2502 Equity 3

LAW 2505 Corporate Law 6

*Available only to students who have been accepted for candidature to the LL.B.

4.2.3.6 Science courses

Level III Science courses listed for the degree of B.Sc. in the Faculty of Sciences.

4.3 The Honours degree of Bachelor of Mathematical and Computer Sciences

To be eligible to be admitted to an Honours degree program, a candidate shall complete the requirements for a Bachelor degree or equivalent to a standard that is acceptable to the Faculty for the purpose of admission to the Honours degree.

A candidate who satisfies the requirements for Honours shall be awarded the Honours degree, but the Faculty shall decide within which of the following classes and divisions the degree shall be awarded:

1 First Class

2A Second Class div A

2B Second Class div B

3 Third Class

NAH Not awarded.

4.3.1 The Honours degree of Bachelor of Mathematical and Computer Sciences

4.3.1.1 A candidate may, subject to the approval of the Head of School concerned, proceed to the Honours degree in one of the following courses, each with the value of twenty-four units:

APP MTH 4011A/B Honours Applied Mathematics and Computer Science

APP MTH 4015A/B Honours Applied Mathematics

APP MTH 4016A/B Honours Applied Mathematics and Genetics

APP MTH 4017A/B Honours Applied Mathematics and Statistics

APP MTH 4018A/B Honours Applied Mathematics and Environmental Biology

COMP SCI 4999A/B Honours Computer Science

MATHS 4000A/B Honours Mathematical Sciences

PURE MTH 4001A/B Honours Pure Mathematics and Statistics

PURE MTH 4003A/B Honours Pure and Applied Mathematics

PURE MTH 4004A/B Honours Computer Science and Pure Mathematics

PURE MTH 4005A/B Honours Pure Mathematics

STATS 4000A/B Honours Statistics

STATS 4003A/B Honours Statistics and Computer Science

STATS 4004A/B Honours Statistics and Genetics

4.3.1.2 A candidate may, subject to the approval of the Faculty in each case, enrol in an Honours course taught in a School in another faculty. Such candidates must consult the Head of the School concerned and apply in writing to the Faculty for admission to the Honours program.

4.3.1.3 In exceptional circumstances, the Faculty may permit a candidate to spread the work over two years on the recommendation of the Head of School.

4.3.1.4 A candidate may not enrol a second time for the Honours program in the same course if he/she:

a has already qualified for Honours in that course

or

b has presented himself/herself for examination in that course but has failed to obtain Honours

or

c has withdrawn from the program unless the Faculty under 4.3.1.5 permits re-enrolment.

4.3.1.5 The Faculty may permit a candidate, who has previously withdrawn from an Honours program, to re-enrol under such conditions (if any) as it may determine.

The Faculty may permit the candidate to re-enrol for an Honours degree under such conditions (if any) as it may determine.

4.4 Graduation

Subject to Chapter 89 of the Statutes, candidates who have satisfied the requirements for any award of the University shall be admitted to that award.

5 Special circumstances

When in the opinion of the relevant Faculty special circumstances exist, the Council, on the recommendation of the Faculty in each case, may vary any of the provisions of the Academic Program Rules