**Programme Specification**

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| **Please note:** This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she passes the programme. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the programme handbook. The accuracy of the information contained in this specification is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education. |

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| **BSc (Hons) Actuarial Science with a Foundation Year** |

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| 1. **Awarding Institution/Body** | University of Kent |
| 1. **Teaching Institution** | University of Kent |
| 1. **School responsible for management of the programme** | School of Mathematics, Statistics and Actuarial Science |
| 1. **Teaching Site** | Canterbury |
| 1. **Mode of Delivery** | Full-time |
| 1. **KentVision Academic Model** | *To be completed in due course, once approved by the University* |
| 1. **Programme accredited by** | Institute and Faculty of Actuaries |
| 1. **a) Final Award** | BSc (Hons) |
| 8. **b) Alternative Exit Awards** | BSc (non hons) Actuarial Science with a Foundation Year;  Diploma in Actuarial Science with a Foundation Year;  Certificate in Actuarial Science with a Foundation Year |
| 1. **Programme** | Actuarial Science with a Foundation Year |
| 1. **UCAS Code (or other code)** | N325 |
| 1. **Credits/ECTS Value** | 480/240 |
| 1. **Study Level** | Undergraduate |
| 1. **Relevant QAA subject benchmarking group(s)** | Mathematics, Statistics & Operational Research (2015) |
| 1. **Date of creation/revision** | September 2018 |
| 1. **Intended Start Date of Delivery of this Programme** | September 2018 |

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| 1. **Educational Aims of the Programme**   The programme aims to: |
| * Equip students with the technical appreciation, skills and knowledge appropriate to graduates in mathematical subjects. * Develop students’ facilities of rigorous reasoning and precise expression. * Develop students’ capabilities to formulate and solve problems. * Develop in students appreciation of recent actuarial developments, and of the links between the theory of the subjects and their practical application in industry. * Develop in students a logical, mathematical approach to solving problems. * Develop in students an enhanced capacity for independent thought and work. * Ensure students are competent in the use of information technology, and are familiar with computers, together with the relevant software. * Provide students with opportunities to study advanced topics, engage in research at some level, and develop communication and personal skills. * Provide successful students with eligibility for up to 6 exemptions from examinations of the Institute and Faculty of Actuaries. |

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| **17 Programme Outcomes**  The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.  The programme outcomes have references to the subject benchmarking statement for Mathematics, Statistics & Operational Research (2015). |

**A. Knowledge and Understanding of:**

1. Core mathematical understanding in the principles of calculus, algebra, mathematical methods, discrete mathematics, analysis and linear algebra. (SB3.8)
2. Statistical understanding in the subjects of probability and inference and time series modelling, plus specialist statistics applications in insurance. (SB3.9, SB3.10)
3. Information technology skills as relevant to actuaries. (SB3.16)
4. Methods and techniques appropriate to the mathematics of finance, of finance and financial reporting, and of financial economics. (SB3.7, SB3.10)
5. The principles of economics as relevant to actuaries.
6. Methods and techniques appropriate to survival models. (SB3.8, SB3.10)
7. The principles of specific actuarial mathematics techniques. (SB3.8)
8. Understanding of the core areas of actuarial practice.

**Skills and Other Attributes**

**B. Intellectual Skills:** (SB3.21, SB3.22)

1. Ability to demonstrate a reasonable understanding of the main body of knowledge for the programme.
2. Ability to demonstrate a reasonable level of skill in calculation and manipulation of the material written within the programme and some capability to solve problems formulated within it.
3. Ability to apply a range of core concepts and principles in well-defined contexts relevant to actuarial science.
4. Ability to use logical argument.
5. Ability to demonstrate skill in solving problems by various appropriate methods.
6. Ability in relevant computer skills and usage.
7. Ability to demonstrate research, presentation and report-writing skills.
8. Ability to work with relatively little guidance.

**C. Subject-specific Skills:** (SB3.21)

1. Skills in the specific mathematical and statistical techniques used in actuarial science, and in their application to solving actuarial problems.
2. Skills in the specific information technology and software used in actuarial science.
3. Understanding of the practical applications of the programme material in insurance.
4. Ability to develop simple actuarial computer models to solve actuarial problems and to interpret and communicate the results.

**D. Transferable Skills:** (SB3.24)

1. Problem-solving skills, relating to qualitative and quantitative information.
2. Communication skills, covering both written and oral communication.
3. Numeracy and computational skills.
4. Information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches.
5. Information technology skills such as word-processing and spreadsheet use, internet communication, etc.
6. Interpersonal skills, relating to the ability to interact with other people and to engage in team-working.
7. Time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working.
8. Study skills needed for continuing professional development.

**Teaching/learning and assessment methods and strategies used to enable the programme learning outcomes to be achieved and demonstrated**

Teaching/learning: Lectures given by a wide variety of teachers; example classes; workshops; computer laboratory classes; skills modules; research projects; team activities; oral presentations.

Assessment: Coursework involving problems, computer assignments, project reports, presentations; written unseen examinations.

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| For more information on the skills developed by individual modules and on the specific learning outcomes associated with any Certificate, Diploma or BA/BSc non-honours awards relating to this programme of study, see the module mapping table, located at the end of this specification. |

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| **18 Programme Structures and Requirements, Levels, Modules, Credits and Awards**  This programme is studied over four years full-time.  The programme is divided into four stages, each stage comprising modules to a total of 120 credits. Students must successfully complete each module in order to be awarded the specified number of credits for that module. One credit corresponds to approximately ten hours of 'learning time' (including all classes and all private study and research). Thus obtaining 120 credits in an academic year requires 1,200 hours of overall learning time. For further information on modules and credits refer to the Credit Framework at <http://www.kent.ac.uk/teaching/qa/credit-framework/creditinfo.html>  Each module and programme is designed to be at a specific level. For the descriptors of each of these levels, refer to Annex 2 of the Credit Framework at <http://www.kent.ac.uk/teaching/qa/credit-framework/creditinfoannex2.html>. To be eligible for the award of an honours degree students must obtain 360 credits, at least 210 of which must be at Level 5 or above, including at least 90 credits at level 6 or above at Stage 3.  Students successfully completing Stage 1 of the programme and meeting credit framework requirements who do not successfully complete Stage 2 will be eligible for the award of the Certificate in Actuarial Science with a Foundation Year. Students successfully completing Stage 1 and Stage 2 of the programme and meeting Credit Framework requirements who do not successfully complete Stage 3 will be eligible for the award of the Diploma in Actuarial Science with a Foundation Year. Students successfully completing Stage 2 of the programme and achieving 300 credits overall including at least 60 credits at level 6 or above in Stage 3 and meeting Credit Framework requirements will be eligible for the award of a BSc non-honours degree.  For further information refer to the Credit Framework at <https://www.kent.ac.uk/teaching/qa/credit-framework/creditinfo.html#exit-awards>.  Compulsory modules are core to the programme and must be taken by all students studying the programme. Optional modules provide a choice of subject areas, from which students will select a stated number of modules.  Where a student fails a module(s) due to illness or other mitigating circumstances, such failure may be condoned, subject to the requirements of the Credit Framework and provided that the student has achieved the **programme** learning outcomes. For further information refer to the Credit Framework at <http://www.kent.ac.uk/teaching/qa/credit-framework/creditinfo.html>.  Where a student fails a module(s), but has marks for such modules within 10 percentage points of the pass mark, the Board of Examiners may nevertheless award the credits for the module(s), subject to the requirements of the Credit Framework and provided that the student has achieved the **programme** learning outcomes. For further information refer to the Credit Framework.  The following modules cannot be trailed or compensated:   * MAST3001 * MAST3002 * MAST3003 * MAST3004 * MAST0025 * MAST0022 * MACT4012 * MACT3150 * MACT3090 * MAST4009 * MAST4011   To progress from the Foundation Year to Stage 1 of this programme, students must normally achieve an average mark of at least 60% (at the first attempt) and marks of at least 60% in each of MAST3001, MAST3003 and MAST0025 (at the first attempt). Students successfully completing the Foundation Year and meeting credit framework requirements but who do not meet the conditions to progress to Stage 1 of this programme may transfer to another Bachelor’s degree programme within the School. | | | | | | |
| **KV Code** | **Code** | **Title** | | **Level** | **Credits** | **Term(s)** | |
| **Stage 0** | | | | | | | | | |
| **Compulsory Modules** | | | | | | | | | |
| MAST3001 | MA361 | Foundation Mathematics 1 | | 3 | 15 | 1 | |
| MAST3002 | MA362 | Vectors and Mechanics | | 3 | 15 | 1 or 2 | |
| MAST3003 | MA363 | Foundation Mathematics 2 | | 3 | 15 | 2 | |
| MAST3004 | MA364 | Mathematical Skills | | 3 | 15 | 1 or 2 | |
| MAST0025 | MA025 | Foundation Statistics | | 3 | 15 | 1&2 | |
| MAST0022 | MA022 | Graphs, Geometry and Trigonometry | | 3 | 15 | 1&2 | |
| FOUN0047 | LZ047 | Academic Skills for Mathematics and Science Foundation | | 3 | 15 | 1 or 2 | |
| For international students with an IELTS score below the standard Stage 1 entry level of 6.5 (or equivalent) | | | | | | | | | |
| FOUN0048 | LZ048 | Academic English for Mathematics and Science Foundation | | 3 | 15 | 1 | |
| **Optional Modules** Students must select from the following modules to make a total of 120 credits overall for Stage 0 | | | | | | | | | |
| HIST4340 | HI434 | Ten Technologies That Made Us Modern | 4 | | 15 | 2 | |
| PHIL3100 | PL310 | Introduction to Philosophy: Logic and Reasoning | 4 | | 15 | 2 | |
| **Stage 1** | | | | | | | | | |
| **Compulsory Modules** | | | | | | | | | |
| MACT3090 | MA309 | Business Economics | | 4 | 15 | 1&2 | |
| MAST4009 | MA351 | Probability | | 4 | 15 | 1 | |
| MAST4011 | MA306 | Statistics | | 4 | 15 | 2 | |
| MAST4006 | MA348 | Mathematical Methods 1 | | 4 | 15 | 1 | |
| MAST4007 | MA349 | Mathematical Methods 2 | | 4 | 15 | 2 | |
| MAST4005 | MA347 | Linear Mathematics | | 4 | 15 | 2 | |
| MACT4012 | MA4512 | Financial Mathematics | | 4 | 15 | 2 | |
| MACT4013 | MA4513 | Actuarial Practice 1 | | 4 | 15 | 1 | |
| **Stage 2** | | | | | | | | | |
| **Compulsory Modules** | | | | | | | | | |
| MAST5010 | MA501 | Statistics for Insurance | | 5 | 15 | 2 | |
| MACT5160 | MA516 | Actuarial Mathematics I | | 5 | 15 | 1 | |
| MACT5270 | MA527 | Corporate Finance for Actuaries | | 5 | 15 | 2 | |
| MACT5280 | MA528 | Financial Reports and Their Analysis | | 5 | 15 | 2 | |
| MAST5007 | MA5507 | Mathematical Statistics | | 5 | 15 | 1 | |
| MAST5001 | MA5501 | Applied Statistical Modelling 1 | | 5 | 15 | 2 | |
| MAST5005 | MA5505 | Linear Partial Differential Equations | | 5 | 15 | 1 | |
| MAST5011 | MA5511 | Optimisation with Financial Applications | | 5 | 15 | 1 | |
| **Stage 3** | | | | | | | | | |
| **Compulsory Modules** | | | | | | | | | |
| MACT6013 | MA6513 | Actuarial Practice II | | 6 | 15 | 1 | |
| MACT5330 | MA533 | Actuarial Mathematics II | | 6 | 15 | 2 | |
| MACT5250 | MA525 | Survival Analysis | | 6 | 15 | 1 | |
| MAST6360 | MA636 | Stochastic Processes | | 6 | 15 | 1 | |
| MACT5350 | MA535 | Financial economics and asset and liability modelling | | 6 | 15 | 1 | |
| MACT5370 | MA537 | Mathematics of Financial Derivatives | | 6 | 15 | 2 | |
| MACT5390 | MA539 | Financial Modelling | | 6 | 15 | 2 | |
| MAST6390 | MA639 | Time Series Modelling and Simulation | | 6 | 15 | 2 | |

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| **19 Work-Based Learning**  Not available. Students interested in a work-based placement should speak to the Director of Studies. |

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| **20 Support for Students and their Learning** |
| * School and University induction programme * Programme/module handbooks * Library services <http://www.kent.ac.uk/library/> * Student Support <http://www.kent.ac.uk/studentsupport/> * Student Wellbeing [www.kent.ac.uk/studentwellbeing/](http://www.kent.ac.uk/studentwellbeing/) * Centre for English and World Languages <http://www.kent.ac.uk/cewl/index.html> * Student Learning Advisory Service <http://www.kent.ac.uk/uelt/about/slas.html> * PASS system <https://www.kent.ac.uk/teaching/qa/codes/taught/annexg.html> * Academic Adviser system <https://www.kent.ac.uk/teaching/advisers/index.html> * Kent Union [www.kentunion.co.uk/](http://www.kentunion.co.uk/) * Careers and Employability Services [www.kent.ac.uk/ces/](http://www.kent.ac.uk/ces/) * Counselling Service https://www.kent.ac.uk/studentwellbeing/counselling/ * Information Services (computing and library services) [www.kent.ac.uk/is/](http://www.kent.ac.uk/is/) * Undergraduate student representation at School, Faculty and Institutional levels * International Recruitment Office <https://www.kent.ac.uk/internationalstudent/>; International Partnerships Office <https://www.kent.ac.uk/global/partnerships/> * Medical Centre <https://www.kent.ac.uk/studentwellbeing/medicalcentre.html> |

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| **21 Entry Profile**  The minimum age to study a degree programme at the university is normally at least 17 years old by 20 September in the year the programme begins. There is no upper age limit. |
| 21.1 **Entry Route**  For current information, please refer to the University prospectus |
| A level  Applications are individually considered. Please contact an Admissions Officer.    Access to HE Diploma  The University will not necessarily make conditional offers to all Access candidates but will continue to assess them on an individual basis.  If we make you an offer, you will need to obtain/pass the overall Access to Higher Education Diploma and may also be required to obtain a proportion of the total level 3 credits and/or credits in particular subjects at merit grade or above.    BTEC Level 3 Extended Diploma (formerly BTEC National Diploma)  The University will consider applicants holding BTEC National Diploma and Extended National Diploma Qualifications (QCF; NQF; OCR) on a case-by-case basis. Please contact us for further advice on your individual circumstances.    International Baccalaureate  Applications are individually considered. Please contact an Admissions Officer. |
| 21.2 **What does this programme have to offer?** |
| * An excellent grounding in actuarial science at university level. * The opportunity to see the applications of actuarial science in a variety of areas. * The opportunity to study the subject within a friendly and highly successful department. * The development of skills which are widely recognised as of great value to employers, and which open up a wide variety of careers. * The ability to gain exemptions from certain professional examinations. |
| 21.3 **Personal Profile** |
| * A keen interest in actuarial science. * An appreciation of the importance of the subject in the modern world. * An interest in learning about the range of real-life applications of actuarial science. * A desire to develop quantitative and problem-solving skills. |

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| 22 **Methods for Evaluating and Enhancing the Quality and Standards of Teaching and Learning** |
| 22.1 **Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards** |
| * Student module evaluations * Annual programme and module monitoring reports <http://www.kent.ac.uk/teaching/qa/codes/taught/annexe.html> * External Examiners system <http://www.kent.ac.uk/teaching/qa/codes/taught/annexk.html> * Periodic programme review <http://www.kent.ac.uk/teaching/qa/codes/taught/annexf.html> * Annual staff appraisal * Peer observation * Quality Assurance Framework <http://www.kent.ac.uk/teaching/qa/codes/index.html> * External accreditation by the Institute and Faculty of Actuaries * Active staff development programme * Continuous monitoring of student progress and attendance * Vetting process of examination questions by module team |
| 22.2 **Committees with responsibility for monitoring and evaluating quality and standards** |
| * Staff-Student Liaison Committee * School Education Committee * Faculty Education Committee * Faculty Board * Education Board * Board of Examiners |
| 22.3 **Mechanisms for gaining student feedback on the quality of teaching and their learning experience** |
| * Student module evaluations * Staff-Student Liaison Committee * Student rep system (School, Faculty and Institutional level) * Annual NSS * Discussions with Academic Advisers * Discussions with Senior Tutor * Informal meetings and social contact with students (including student role in recruitment activities) * Staff have office hours when students can discuss their modules/programmes |
| 22.4 **Staff Development priorities include:** |
| * PGCHE requirements * HEA (associate) fellowship membership * Annual appraisals * Institutional Level Staff Development Programme * Academic Practice Provision (PGCHE, other development opportunities) * Professional body membership and requirements * Programme team meetings * Research seminars * Conferences * Study leave * Equality, Diversity and Inclusivity (EDI) awareness |

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| 23 **Indicators of Quality and Standards** |
| * Results of periodic programme review Mar 2017 * Professional accreditation Institute and Faculty of Actuaries * QAA Higher Education Review 2015 * Annual External Examiner reports * Annual programme and module monitoring reports |
| 23.1 **The following reference points were used in creating these specifications:** |
| * QAA Benchmarking statement/s for Mathematics, Statistics & Operational Research (2015) * Accreditation requirements of Institute and Faculty of Actuaries * School and Faculty plan * University Plan <https://www.kent.ac.uk/about/plan/> and Learning and Teaching Strategies https://www.kent.ac.uk/uelt/strategies/lta.html * Staff research activities * Kent Inclusive Practices (<https://www.kent.ac.uk/studentsupport/accessibility/inclusive-practice.html>) |

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| 24 **Inclusive Programme Design** |
| The School recognises and has embedded the expectations of current equality legislation, by ensuring that the programme is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services. |

*Template last updated November 2017*

**BSc Actuarial Science with a Foundation Year**

**Learning outcome by module**

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| **Stage and module** | **A. Knowledge & Understanding** | | | | | | | |  | **B. Intellectual Skills** | | | | | | | |  | **C. Subject Specific Skills** | | | |  | **D. Transferable Skills** | | | | | | | |
|  | A1 | A2 | A3 | A4 | A5 | A6 | A7 | A8 |  | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |  | C1 | C2 | C3 | C4 |  | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 |
| **Stage 0** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MAST3001 | X |  |  | X |  |  |  |  |  | X | X | X |  | X | X |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST3002 | X |  |  | X |  |  |  |  |  | X | X | X |  | X |  |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST3003 | X |  |  | X |  |  |  |  |  | X | X | X |  | X | X |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST3004 | X |  | X |  |  |  |  |  |  | X | X | X | X | X |  | X | X |  | X |  |  |  |  | X | X | X |  | X | X | X |  |
| MAST0025 |  | X |  | X |  |  |  |  |  | X | X | X |  | X |  |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST0022 | X |  |  | X |  |  |  |  |  | X | X | X | X | X |  |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| FOUN0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  | X |  |
| **Stage 1** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MACT3090 |  |  |  |  | X |  |  |  |  | X | X | X | X | X | X | X | X |  | X |  | X |  |  | X | X | X |  | X | X | X | X |
| MAST4009 |  | X |  | X |  |  |  |  |  | X | X | X |  | X |  |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST4011 |  | X | X | X |  |  |  |  |  | X | X | X |  | X | X |  |  |  | X |  |  |  |  | X | X | X |  | X | X | X |  |
| MAST4006 | X |  | X | X |  |  |  |  |  | X | X | X |  | X | X |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST4007 | X |  | X | X |  |  |  |  |  | X | X | X |  | X | X |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST4005 | X |  | X | X |  |  |  |  |  | X | X | X | X | X | X |  |  |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MACT4012 | X | X |  | X |  |  |  |  |  | X | X | X | X | X |  |  |  |  | X |  | X |  |  | X | X | X |  |  |  | X | X |
| MACT4013 |  |  | X | X | X |  |  |  |  | X | X | X | X | X | X | X | X |  | X |  | X | X |  | X | X | X | X | X |  | X | X |
| **Stage 2** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MAST5001 |  | X | X |  |  |  |  |  |  | X | X | X | X | X | X |  | X |  | X |  |  |  |  | X | X | X |  |  |  | X | X |
| MAST5007 |  | X |  |  |  |  |  |  |  | X | X | X | X | X |  |  | X |  | X |  |  |  |  | X | X | X |  | X |  | X | X |
| MACT5160 | X | X |  |  |  | X | X |  |  | X | X | X | X | X |  |  |  |  | X |  |  |  |  | X | X | X |  |  |  | X | X |
| MAST5010 |  | X |  |  |  |  | X |  |  | X | X | X |  | X |  |  |  |  | X |  |  |  |  | X |  |  |  |  |  |  |  |
| MAST5005 | X |  |  | X |  |  |  |  |  | X | X | X | X | X |  |  | X |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MAST5011 |  | X | X | X |  |  |  |  |  | X | X | X | X | X | X |  | X |  | X |  |  |  |  | X | X | X |  | X |  | X |  |
| MACT5270 |  |  |  | X |  |  |  |  |  | X | X | X | X | X |  | X | X |  | X |  | X |  |  | X | X | X | X | X |  | X | X |
| MACT5280 |  |  |  | X |  |  |  |  |  | X | X | X | X | X | X | X | X |  | X | X | X |  |  | X | X | X | X | X |  | X | X |
| **Stage 3** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MACT6013 |  |  | X | X | X |  |  | X |  | X | X | X | X |  |  | X | X |  |  |  | X | X |  | X | X | X | X | X | X | X | X |
| MAST6390 |  | X | X |  |  |  |  |  |  | X | X | X | X |  | X |  | X |  | X |  |  |  |  | X | X | X | X | X | X | X |  |
| MACT5330 | X | X |  |  |  | X | X |  |  | X | X | X | X | X |  |  |  |  | X |  | X |  |  | X | X | X |  |  |  | X | X |
| MACT5250 |  | X |  | X |  | X | X | X |  | X | X | X | X | X |  |  |  |  | X |  | X |  |  | X | X | X |  |  |  | X | X |
| MACT5350 | X | X |  | X |  |  |  |  |  | X | X | X | X | X |  |  |  |  | X |  |  |  |  | X | X | X |  |  |  | X | X |
| MACT5370 | X | X |  | X |  |  |  |  |  | X | X | X | X | X |  |  |  |  | X |  | X |  |  | X | X | X |  |  |  | X | X |
| MAST6360 |  | X |  |  |  |  | X |  |  |  | X | X | X | X |  |  | X |  | X |  |  |  |  | X | X | X |  |  |  |  | X |
| MACT5390 |  |  |  |  |  |  | X |  |  |  |  |  | X | X | X |  |  |  |  | X |  | X |  | X | X |  |  |  |  |  |  |