BSc (Hons) Data Science and Artificial Intelligence

Academic year: 2021-2022

Programme documents detail the aims, learning strategies, structure and intended learning outcomes that students should achieve if they fully engage with the learning provided within the programme. The document is intended to support and inform prospective students, current students, academic and support staff, external stakeholders (such as PSRBs) and external examiners.

1. PROGRAMME INFORMATION	
Title of final award	BSc (Hons) Data Science and Artificial Intelligence
Code	OUbs035
Awarding Body	Open University of Mauritius
Academic Unit	Communication and IT
Programme Manager	Mr. Devendra BABOOA
Administrative contact point	Mrs Kalindee Lucknauth
Programme duration	*Minimum 3 years* *Maximum 6 years*
Total Credits	180
Credits per year	*Normally 60 credits per academic year* *Number of credits per semester: 30*
MQA NQF level	Level 8
EHEA level	Level 6
External Accreditors	Not applicable
Collaborative Partners	Not applicable
Programme approval date	October 2020
Last revision	Not applicable
Last update	Not applicable

2. ENTRY REQUIREMENTS	
General:	General Entry Requirements under Direct Entry to Taught Undergraduate Programmes: A person may normally be admitted as a learner for an Undergraduate Programme if he/she (i) **EITHER** "Credit" in at least three subjects at School Certificate or General Certificate of Education O-Level or equivalent and "Pass" in at least two subjects at Higher School Certificate or General Certificate of Education Advanced Level or equivalent; (ii) **OR** An appropriate equivalent Diploma/Certificate/Foundation Courses acceptable to The Open University of Mauritius. (iii) Learners who do not qualify under options I and II may register for Foundation Courses offered by The Open University of Mauritius. Those who complete the Foundation Courses successfully will be eligible for registration for the relevant degree programmes. (iv) **OR** Qualifications awarded by other universities and institutions, which are acceptable to the Open University of Mauritius as satisfying the minimum requirements for admission. (v) Mature candidates having a strong background of work experience and uncertified learning may be assessed for entry to programmes through the Accreditation of Prior Learning (APL) and the Accreditation of Prior Experiential Learning (APEL). Please consult the General Rules and Regulations of the Open University of Mauritius for further details.
Programme specific:	Minimum of Grade 'C' in Mathematics or Statistics at Principal Level ('A'-level)

3. PROGRAMME OVERVIEW	
Aims and objective of the programme**:**	This programme combines two key areas of computing, namely data science and artificial intelligence, in a synergistic manner. Data science and Artificial Intelligence are two complementary areas of Intelligent Systems, with Data science focusing on statistical techniques and Artificial Intelligence on algorithmic techniques. This course emphasises an appropriate understanding and application of integral Artificial intelligence (AI) and Data Science concepts, and their application to solve real-world problems. In addition, an industrial placement of a minimum of 1 and a maximum of 3 months duration will be set-up by the university in collaboration with technology focused and other general incubator centres around the island. The learner will be called upon to investigate a problem within the host company and present a solution which will be form part of a Data Science/AI report to complement the curriculum through practical exposure.

	AI is the simulation of human intelligence processes by machines, especially computer systems, and Data Science is a major input to a working AI model. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction. Particular applications of AI include expert systems, speech recognition and machine vision. This course introduces students to the foundations of data science, artificial intelligence, and the core technologies that are required to apply AI in the real world. The aims of the programme are to enable you to: 1) a strong foundation in both the theoretical and the practical aspects of computational intelligence 2) acquire the theoretical and the practical aspects of data science and artificial intelligence 3) a strong ability to critically analyse data, evaluate information, and solve problems 4) learn to program effectively and utilise state of the art tools in machine learning, neural networks and data science 5) insight into advanced areas of artificial intelligence and machine learning 6) the ability to work professionally as an individual, particularly in terms of a large research project Graduates mainly go on to work in a wide variety of industries and across a whole range of jobs including as a Data Analyst/Scientist, Software Developer, Machine Learning Scientist/Engineer, Data Science Consultant, Business Intelligence Engineer, Big Data Engineer/Application Developer.
Intended Learning outcomes: After successfully completing this programme, students will be able to:	
Knowledge and understanding	**A1**. Key concepts of Data Science and Artificial Intelligence. **A2.** Advanced concepts in specialist areas of artificial intelligence, such as machine learning and deep learning. **A3.** State of the art techniques, technologies and tools used in these specialist areas. **A4.** Methods of design, analysis, implementation and verification in these specialist areas. **A5.** Applicable methods of research and enquiry within the discipline.
Subject Specific Intellectual and Research Skills	**B1.** Specify, design and realise advanced and specialised AI sub-systems. **B2.** Test and evaluate the behaviour of AI sub-systems at an appropriate level of detail. **B3.** Analyse Data Science and AI problems to determine appropriate methods of design, testing and evaluation. **B4.** Find, read, understand and explain literature related to fundamental and advanced areas of artificial intelligence and new data storage technologies, including

	scientific publications, industrial documentation, standards, ethical, legal and environmental guidance. **B5.** Formulate a research project involving the fundamentals and specialised AI application or system using appropriate state of the art techniques, technologies and tools.
Transferable and Generic Skills	**C1.** Use conventional and electronic indexing and search methods to find technical information. **C2.** Present technical information concisely in written and verbal forms to a range of audiences. **C3.** Work in a pair or in a small group on a given task, managing your own contribution and the overall task. **C4.** Work independently on a significant research project, managing time and risk in an effective manner. **C5.** Recognise legal and ethical issues of concern to business, professional bodies, and society, including but not limited to information security, and follow relevant guidelines to address these issues.
Subject Specific Practical Skills	**D1.** Use specialist tools for the design, implementation and verification of Data Science and Artificial Intelligence systems.

4. PROFESSIONAL, STATUTORY AND REGULATORY BODIES (where applicable)
Not applicable

5. LEARNING AND TEACHING STRATEGY
Learning and teaching methods: Students will be provided with opportunities to engage in a diverse range of learning environments so as to maximise their learning. For this programme, students will interact with their tutor and their fellow students mostly through the e-platform. The e-platform will use the following tools: - Online Activities: for every unit covered in each module, students will be given opportunities to complete interactive learning activities including discussion forums, quizzes, field trips, webinars and problem-solving activities. Students will be encouraged to work independently but also to engage in collaborative work. - Independent Study: Independent study forms an essential part in the development of your knowledge and understanding. We will guide you, via the e-platform, on the reading and reflection of primary and secondary texts. Students should use this independent study time to link knowledge with e-class and face-to-face activities and develop their own understanding and critical perspective on the topics they are studying.

We also offer optional face-to-face sessions.

The face-to-face sessions are an opportunity to untangle complex concepts and provide students with an opportunity to apply the knowledge acquired in the preceding weeks. During the face-to-face sessions, students can be expected to:

- Engage in problem solving activities
- Engage with reading material to engage in class discussions
- Review core/complex concepts through applied work.

Research Supervision:

In the final part, students will undertake an applied dissertation project in Artificial Intelligence, supervised by one of our tutors with expertise in the area of the dissertation topic. Students will have the opportunity to meet with the supervisor to explore the topic, receive guidance on the research and receive feedback on the work as it progresses.

Strategy	LO
Practical exercise	A3, A4, B1, B2, B3, D1
Group work	C3
Independent research	C4
Independent learning	A1, A2, A5, B4, B5
Presentation	C2
Technical Report	C1, C5

Overall Workload:

Your overall workload as a student consists of independent learning, e-learning activities and, if you choose to, face to face sessions. The following gives you an indication of how much time you will need to spend on the different components of your programme at each level. Each ECTS credit taken equates to 25-30 hours of study time.

The expected study time for this programme will be as follow:

Year 1: 1,500 to 1,800 hours for 60 ECTS credits.
Year 2: 1,500 to 1,800 hours for 60 ECTS credits.
Year 3: 1,500 to 1,800 hours for 60 ECTS credits.

Typically, for each year of your degree you will spend 0-15% of your time in face to face sessions, 35-40% of your time engaging with e-learning activities and 60% of your time in independent study time.

A typical study week for a student will involve some optional face to face sessions, required engagement in online discussion forum, the completion of online activities and independent study

time to review attached readings, textbooks and relevant sections of the module document. Students should expect to devote 8 to 12 hours of study time per week per module.

These are indicative and may vary from student to student.

6. ASSESSMENT STRATEGY

Assessment Methods

A range of formative and summative assessment exercises are designed to enable you to demonstrate and apply your knowledge and understanding.

Most modules will consist of a Tutor Marked Assessment component and an examination. TMAs include:
- technical reports
- software designs and implementation
- group project
- exercises and problem sets
- project presentation
- applied dissertation project
- viva

Assessment mapping: See Appendix Page 12.

Academic Feedback

Throughout the course of your studies, tutors will provide informal feedback on your online activities and class contributions. Feedback may be individual or provided to the class as a whole.

Each summative assessment will be accompanied by detailed marking criteria and marking scheme detailing the expectation of the assessment at each grade classification level. Feedback on assessment will be provided along the marking criteria. Marking criteria will be made available to the student at the same time as the assessment details.

Students will receive written individual feedback on all TMA components.

The university policy on assessment feedback and guidance on provisional marks can be found in the General Rules.

Late submission, Extension and Re-sit Policy

The university policy on Late Submission, Extension and Re-sits can be found in the General Rules.

Special Circumstances

The university policy on Special Circumstance can be found in the General Rules.

Continuous assessment and Exam Regulations

The university regulations on Continuous Assessment and Examination can be found in the General Rules.

Dissertation
The university regulations on Dissertation can be found in the General Rules.

7. ACADEMIC MISCONDUCT

As a safeguard to the quality and standard of Open University's qualifications and awards, the university takes any incidence of academic misconduct seriously and will investigate any reported case.

Academic Misconduct refers to any activity where a student, through unpermitted means, seeks to gain an advantage in the completion of an assessment. Any unpermitted action will be considered as academic misconduct when occurring during a formal examination, a TMA, or any other form of assessment considered by Board of Examiners and undertaken in pursuit of a University qualification or award.

Plagiarism (using, intentionally or unintentionally another's person's work and presenting it as its own) will be systematically checked through an automated text-matching detection software that supports the detection of plagiarism: Turnitin.

Any suspected cases of academic misconduct will be reported and investigated. Academic misconduct offences, may lead to suspension or expulsion from the University.

The university regulations on Academic Misconduct can be found in the General Rules.

8. PROGRAMME STRUCTURE

C= Core i.e. modules which must be taken to be eligible for the award
E = Electives i.e. module chosen by students from a range of listed optional modules
S1 = Semester 1
S2 = Semester 2

Year 1 – Level 6 (NQ-MQA) – Short Cycle Introductory (QF-EHEA)
All core modules must be taken

Code	Module Title	Type	Semester	Credits
111	Essentials of Statistics	**C**	**S1**	6
112	Mathematics for Artificial Intelligence	**C**	**S1**	6
113	Digital Logic	**C**	**S1**	6
114	Computer Systems Fundamentals	**C**	**S1**	6
115	Introduction to entrepreneurship	**C**	**S1**	6
121	Design and Algorithms	**C**	**S2**	6
122	Software Engineering Fundamentals	**C**	**S2**	6
123	OO Design and Programming	**C**	**S2**	6
124	Introduction to Data Science	**C**	**S2**	6

125	DBMS	C	S2	6
			Credit Total	60

Year 2 – Level 6-7 (NQ-MQA) – Short Cycle Intermediate (QF-EHEA)
All core modules must be taken

Code	Module Title	Type	Semester	Credits
211	Project Management	C	S1	6
212	Algorithms and Programming Techniques	C	S1	6
213	Data Analysis using Statistical packages	C	S1	6
214	Data Science for Business	C	S1	6
215	Data Visualization	C	S1	6
221	Ethics and Law in AI	C	S2	6
222	Data Warehousing and Data Mining	C	S2	6
223	Blockchain Foundations and Applications	C	S2	6
224	Computer Vision	C	S2	6
225	Work Placement Project	C	S2	6
			Credit Total	60

Year 3 – Level 7-8 (NQ-MQA) – 1 Cycle Honours (QF-EHEA)
All core modules must be taken

Code	Module Title	Type	Semester	Credits
311	Artificial Intelligence	C	S1	6
312	Machine Learning	C	S1	6
313	Neural Networks and Deep Learning	C	S1	6
314	Natural Language Processing	C	S1	6
315	Intelligent Agents	C	S1	6
321	New Data Storage	C	S2	6
322	Big Data Analytics	C	S2	6
323	Advanced Topics in Statistical Machine Learning	C	S2	6
324	Data Science/ Artificial Intelligence Final Year Project	C	S2	12
			Credit Total	60

Overall Programme Credit Total	**180**	

9. GRADING

Grading system:

Assessments are graded in percentage and correspond to a letter grade and a grade point.

Marks (x) %	Description	Grade	Grade point
70 % ≤ X ≤ 100 %	Excellent	A	5

60 % ≤ X < 70 %	Very Good	B	4
50 % ≤ X < 60 %	Good	C	3
40 % ≤ X < 50 %	Satisfactory	D	2
0 % < X < 40 %	Ungraded	U	0
Non-graded/pending	See section 17.1.1 in assessment rules and regulation for pending grades letter codes		

To pass a module, students need an overall of 40% weighted average of their combined continuous assessment and examination. All components of TMAs will have to be submitted and examination sat to pass the module.

Students will normally not be allowed to postpone more than two modules for the following semester.

If a student obtains grade "U" in three or more modules in the same semester, and the CPA is below 40 for that semester, the student will be requested to repeat the semester unless decided otherwise by the Academic Council upon the recommendation of the Board of Examiners. When repeating a semester, a student may or may not take the modules for which Grade C or above has been obtained.

If after completing a level the student's CPA < 40, the student will have to repeat the entire academic year and retake the modules as and when offered. However, s/he will not be required, if s/he wishes, to retake 3 module(s) for which Grade C or above has been obtained.

Students will not be allowed to repeat more than two semesters during the entire duration of the programme.

University general marking criteria for undergraduate exams and undergraduate dissertations can be found in the General Rules.

Cumulative Point Average (CPA):

Total CPA for undergraduate degrees is calculated by:
a) multiplying the module credit by the % marks for the module and then summed up and divided by the total credits attempted over the cumulative period at each level (1 semester or 1 year); AND
b) Taking the weighted average of the obtained CPAs at each level. The respective weights being set as follows: the CPA of level 5 modules (year 1) will be weighted at 15% (0.15); the CPA of level 6 modules (year 2) will be weighted at 35% (0.35); and the CPA of level 7/8 modules (year 3 and/or 4) will be weighted at 50% (0.5).

Example calculation of the CPA at level 5 for undergraduate programmes:

Course Level 5	% Scores	ECTS Credit unit	Module Credit x % Score
BAXX1	64	7.5	64*7.5 = 480

BAXX2	71	7.5	71*7.5 = 533
BAXX3	44	7.5	44*7.5= 330
BAXX4	59	7.5	59* 7.5= 443
BAXX5	82	5.0	82*5 = 410
BAXX6	62	5.0	62*5 = 310
BAXX7	65	5.0	65*5 = 325
BAXX8	54	15.0	54*15 = 810
Total		60	3640
CPA = 3640/60			**61.7**

Example Calculation Total CPA:

Level	Score	Weighted score
CPA level 5 (60 credits)	61.7	61.7 *0.15 = 9.11
CPA level 6 (60 credits)	63.4	63.4*0.35 = 22.19
CPA level 7/8 (60 credits)	65.5	65.5*0.5 = 32.75
Total CPA (180 credits)		**64**

10. PROGRESSION, EXIT POINTS AND AWARD

Progression	If a student fails to achieve 60 credits at the end of a year level, the Board of examiners will make a decision with regard to the student's progression. At its discretion, the Board of Examiners may: - allow a student to carry forward up to 15 credits in the following year level in order to retake these units in attendance; - require the student to repeat the year; - award of an exit award once the student has exhausted all the opportunities to retrieve failed assessment.
Classification of Awards	For the award of the Honours degree, all modules of the programme must be completed. The Certificate of Higher Education and the Diploma of Higher Education are awarded as possible exit points in the programme as indicated in the table below: {table below}

Award	Title	Level NQ-MQA	Total required Credits	Classification
BSc (Hons)	Data Science and Artificial Intelligence	8	180	**1st Class with Honours**: CPA ≥70

					2nd Class 1st Division with Honours: 60 ≤ CPA < 70 2nd Class 2nd Division with Honours: 50 ≤ CPA < 60 3rd Class: 45 ≤ CPA < 50
	BSc	Data Science and Artificial Intelligence	7	180	Pass: 40 ≤ CPA < 45
	Diploma of Higher Education (DipHE)	Data Science and Artificial Intelligence	6-7	120	Distinction: CPA ≥70 Pass: 40 ≤ CPA < 70 No award: CPA < 40
	Certificate of Higher Education (CertHe)	Data Science and Artificial Intelligence	6	60	Distinction: CPA ≥70 Pass: 40 ≤ CPA < 70 No award: CPA < 40

11. STUDENT SUPPORT

Support available through:
studentsupport@open.ac.mu

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12. Have you say

Open University values student feedback and students will be given opportunities to have their say on their learning experience in the following way:

- Student programme and module evaluation surveys;
- Acting as student representative and participate in a range of committees such as the staff-student consultative committee;
- Participate in programme validation processes.

The University will respond to student feedback through the following channels:
- Response and action taken following the module evaluation survey will be posted on the e-platform;
- Action from minutes will be monitored by the chair of the relevant committees;
- Annual programme monitoring process will take into account student feedback;
- Programme review process (every five years).

13. Curriculum Map of Programme learning outcomes against module intended learning outcomes

Module title	Code	Type	Mode	K1	K2	K3	K4	K5	C1	C2	C3	C4	C5	T1	T2	T3	T4	T5	P1	P2	P3
Year 1 NQ-MQA Level 6																					
Essentials of Statistics	111	C	BL	●	●			●		●	●	●		●	●		●	●	●		
Mathematics for Artificial Intelligence	112	C	BL	●	●	●			●	●		●			●	●			●	●	
Digital Logic	113	C	BL	●	●	●			●	●		●			●	●			●	●	
Computer Systems Fundamentals	114	C	BL		●			●		●	●			●	●		●	●			
Introduction to entrepreneurship	115	C	BL		●			●		●	●			●	●		●	●			
Design and Algorithms	121	C	BL	●	●			●		●	●	●		●	●		●	●	●		
Software Engineering Fundamentals	122	C	BL	●	●	●			●	●		●			●	●			●	●	
OO Design and Programming	123	C	BL	●	●	●			●	●		●			●	●			●	●	
Introduction to Data Science	124	C	BL		●			●		●	●	●		●	●		●	●			
DBMS	125	C	BL	●	●	●			●	●		●			●	●			●	●	
Year 2 NQ-MQA level 6-7																					
Project Management	211	C	BL	●	●			●		●	●	●		●	●		●	●	●		

Course	Code			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Algorithms and Programming Techniques	212	C	BL					•			•		•	•	•		•	•			
Data Analysis using Statistical packages	213	C	BL	•	•			•		•	•	•		•	•		•	•	•		
Data Science for Business	214	C	BL		•			•		•	•			•	•		•	•			
Data Visualization	215	C	BL	•	•	•			•	•		•		•		•			•	•	•
Ethics and Law in AI	221	C	BL		•			•		•	•			•	•		•	•			
Data Warehousing and Data Mining	222	C	BL	•	•			•		•	•	•		•	•		•	•	•		
Blockchain Foundations and Applications	223	C	BL		•			•		•	•			•	•		•	•			
Computer Vision	224	C	BL	•	•			•		•	•	•		•	•		•	•	•		
Work Placement Project	225	C	BL	•	•	•			•	•		•		•		•			•	•	•
Year 3 NQ-MQA level 7-8																					
Artificial Intelligence	311	C	BL	•	•			•		•	•	•		•	•		•	•	•		
Machine Learning	312	C	BL	•	•	•			•	•		•		•		•			•	•	•
Neural Networks and Deep Learning	313	C	BL					•			•		•	•	•		•	•			
Natural Language Processing	314	C	BL	•	•			•		•	•	•		•	•		•	•	•		
Intelligent Agents	315	C	BL	•	•	•			•	•		•		•		•			•	•	•

13

Module Title	Code			Learning Outcomes
New Data Storage	321	C	BL	● ● ● ● ● ● ● ● ● ● ●
Big Data Analytics	322	C	BL	● ● ● ● ● ● ● ● ● ● ●
Advanced Topics in Statistical Machine Learning	323	C	BL	● ● ● ● ● ● ● ● ● ● ●
Data Science/ Artificial Intelligence Final Year Project	324	C	BL	Subject to the topic, various combinations of the knowledge and understanding learning outcomes will be demonstrated ● ● ● ● ● ● ● ● ● ● ● ●

C = Core; E = Elective; DL = Distance Learning; BL= Blended Learning; CD = Campus delivery

Appendix 1: Assessment mapping

Module Code	Module Title	Assessment Method
Year 1 NQ-MQA Level 6		
111	Essentials of Statistics	**TMA 40%:** Online Quiz (10% of TMA) Problem Solving Exercises (30% of TMA) **Final Examination 60%**
112	Mathematics for Artificial Intelligence	**TMA 40%:** Online Quiz (10% of TMA) Problem Solving Exercises (30% of TMA) **Final Examination 60%**
113	Digital Logic	**TMA 40%:** Online Quiz (10% of TMA) Problem Solving Exercises (30% of TMA) **Final Examination 60%**
114	Computer Systems Fundamentals	**TMA 40%:** Online Activities (10% of TMA)

		Technical Report (30% of TMA) **Final Examination 60%**
115	Introduction to entrepreneurship	**TMA 40%:** Online Activities (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
121	Design and Algorithms	**TMA 40%:** Online Quiz (10% of TMA) Problem Solving Exercises (30% of TMA) **Final Examination 60%**
122	Software Engineering Fundamentals	**TMA 40%:** Online Activities (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
123	OO Design and Programming	**TMA 50%:** Online exercises (10% of TMA) Group Project Presentation includes Individual Component (40% of TMA) **Final Examination 50%**
124	Introduction to Data Science	**TMA 40%:** Online Activities (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
125	DBMS	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
Year 2 NQ-MQA level 6-7		
211	Project Management	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**

212	Algorithms and Programming Techniques	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
213	Data Analysis using Statistical packages	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
214	Data Science for Business	**TMA 50%:** Online quiz (10% of TMA) Business Process Report (20% of TMA) Implementation Report (20% of TMA) **Final Examination 50%**
215	Data Visualization	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
221	Ethics and Law in AI	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
222	Data Warehousing and Data Mining	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
223	Blockchain Foundations and Applications	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
224	Computer Vision	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**

225	Work Placement Project	**TMA 100%:** Technical Report including working Software/Data Model
Year 3 NQ-MQA level 7-8		
311	Artificial Intelligence	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
312	Machine Learning	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
313	Neural Networks and Deep Learning	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
314	Natural Language Processing	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
315	Intelligent Agents	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
321	New Data Storage	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
322	Big Data Analytics	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**

323	Advanced Topics in Statistical Machine Learning	**TMA 40%:** Online Exercises (10% of TMA) Technical Report (30% of TMA) **Final Examination 60%**
324	Data Science/ Artificial Intelligence Final Year Project	Project software together with a written report (14,000 to 16,00 words) followed by Viva- 100%