2020/1 - CMP-4003A INTRODUCTION TO FINANCIAL MATHS & MODELLING

Autumn Semester, Level 4 module
(Maximum 45 Students)
UCU: 20 Organiser: Mr Will Carpenter
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:B1, D1, G2\+
Exam Paper(hrs):3 Exam Period:SPR-02

You will learn introductory material relating to financial maths such as present values, accumulations, annuities. You will also get an introduction to spreadsheet skills for actuaries as well as some discrete maths material in preparation for later modules.

2020/1 - CMP-4011A WEB-BASED PROGRAMMING

Autumn Semester, Level 4 module
(Maximum 270 Students)
UCU: 20 Organiser: Dr Jeannette Chin
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:F2, G1¦H2¦B3
Exam Period:SPR-02

In this module you will be introduced to some of the tools used for web development. You will then build a substantial dynamic web site using HTML, CSS, Javascript and a high level language. An understanding of the underlying mechanisms of the technologies used in the Internet and World Wide Web is essential for any computing science student. Therefore, in the latter part of the module you will learn about these technologies and undertake a practical approach to exploring them. You will learn about issues of information systems security at all stages but also in dedicated sessions. In the final element of the module you will study multi-media issues in web based systems.

2020/1 - CMP-4013A SYSTEMS DEVELOPMENT

Autumn Semester, Level 4 module
(Maximum 260 Students)
UCU: 20 Organiser: Dr Pam Mayhew
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:A1, F1\¦F1/¦B1\, B1/-D1\¦D1/-H1
Exam Paper(hrs):2 Exam Period:SPR-02

The complexity of Computer Based Systems, appropriate development approaches, and their inherent activities will be discussed using case studies and guest speakers where appropriate.

Emphasis will be placed on the processes involved with systems requirements, creative designs, and careful development, in a professional manner, ensuring that issues such as project management, safety, security and data protection are taken into account. The module will include a number of modelling techniques to support the systems development process. These will be put into practise during the group exercise that will run throughout the semester. There are also opportunities for students to hone their transferable skills through literature searching, report writing, seminar discussions and presentations.

2020/1 - CMP-5003A SYSTEMS ANALYSIS

Autumn Semester, Level 5 module
(Maximum 60 Students)
UCU: 20 Organiser: Dr Pam Mayhew
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:C2, E2\, E2+¦E2/¦C3
Exam Paper(hrs):3 Exam Period:SPR-02

This module considers various activities associated with the development of computer based systems including business strategy, project management, feasibility, investigation methods, stakeholder management, analysis, the links to design and implementation, and managing change. Its main focus, however, is on the early stages, in particular requirements investigation and specification including the use of UML. It makes use of a number of analysis and design techniques in order to produce readable system specifications. Students are introduced to a number of development methods including object orientated, soft systems, structured, participative, and agile approaches.

2020/1 - CMP-5013A ARCHITECTURES AND OPERATING SYSTEMS

Autumn Semester, Level 5 module
(Maximum 194 Students)
UCU: 20 Organiser: Dr Michal MacKiewicz
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:D1, A1/-F1\¦F1/-B1\
Exam Paper(hrs):2 Exam Period:SPR-02

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-4002B OR TAKE CMP-4009B OR TAKE CMP-5020B

Study the organisation of system software and the underlying hardware architecture in modern computer systems. The role of concurrent operation of hardware and software components is emphasised throughout this module. Central concepts are reinforced by practical work in the laboratory. The architectures portion of the module focuses on the components of a processor, including the registers and data path, and you will explore concepts such as instruction fetch cycles, instruction decoding and memory addressing modes. The operating systems component focuses on how the system software manages the competing demands for the system hardware, including memory management and disc and

processing scheduling.

2020/1 - CMP-5027A ANALOGUE AND DIGITAL ELECTRONICS

Autumn Semester, Level 5 module
(Maximum 150 Students)
UCU: 20 Organiser: Dr Ben Milner
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Coursework
Timetable Slot:F2, E2\, A2-G1\¦C2-D3\

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-4002B OR TAKE ENG-4005Y OR TAKE ENV-4015Y

A practical introduction to electronics, this module is structured to consider analogue electronics and digital electronics in turn. Topics you'll cover include passive and active components, including op-amps, transistors, logic gates, flip-flops and registers. Circuits you'll study include amplifiers, oscillators, modulators, combinational and sequential logic and state machines. You'll spend much of your time doing practical work – underpinned by lectures – where you will build prototypes circuits, as well as designing and building Printed Circuit Boards (PCBs).

2020/1 - CMP-5034A MATHEMATICAL STATISTICS

Autumn Semester, Level 5 module
(Maximum 65 Students)
UCU: 20 Organiser: Dr Aristidis K Nikoloulopoulos
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:F1/, E1-H3\
Exam Paper(hrs):3 Exam Period:SPR-02

BEFORE TAKING THIS MODULE YOU MUST TAKE MTHB4006Y OR TAKE MTHB4009B AND TAKE MTHB4015Y OR TAKE MTHA4001Y AND TAKE MTHA4005Y

This module introduces the essential concepts of mathematical statistics deriving the necessary distribution theory as required. In consequence in addition to ideas of sampling and central limit theorem, it will cover estimation methods and hypothesis-testing.

2020/1 - CMP-5036A INFORMATION RETRIEVAL

Autumn Semester, Level 5 module
(Maximum 60 Students)
UCU: 20 Organiser: Dr Dan Smith
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:F2, A2

Exam Paper(hrs):2 Exam Period:SPR-02

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-4011A OR TAKE CMP-4010B

In this module you will learn about the development of the technologies which are the basis of search on the Web. Search engine development has been driven by large increases in online documents and the need to provide better results. You will learn about a range of techniques for improving search results and how to evaluate their impact.

2020/1 - CMP-6004A ADVANCED STATISTICS

Autumn Semester, Level 6 module
(Maximum 40 Students)
UCU: 20 Organiser: Professor Elena Kulinskaya
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:D1/, H2, E1\, E1/
Exam Paper(hrs):3

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-5017B OR TAKE CMP-5019B OR TAKE CMP-5034A

This module covers two topics in statistical theory: Linear and Generalised Linear models and also includes Stochastic processes. The first two topics consider both the theory and practice of statistical model fitting and students will be expected to analyse real data using R. Stochastic processes including the random walk, Markov chains, Poisson processes, and birth and death processes.

2020/1 - CMP-6006A GRAPHICS 2

Autumn Semester, Level 6 module
(Maximum 30 Students)
UCU: 20 Organiser: Professor Andy Day
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:A1/*G1\, F1¦H2
Exam Paper(hrs):3 Exam Period:SPR-02

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-5010B

Explore the fundamentals of 3D geometric transformations and viewing using OpenGL and learn the theory and implementation of fundamental visibility determination algorithms and techniques for lighting, shading and anti-aliasing. You'll study 3D curves and fundamental geometric data structures, as well as considering the issues involved with modern high performance graphics processors.

2020/1 - CMP-6039A HUMAN COMPUTER INTERACTION

Autumn Semester, Level 6 module
(Maximum 40 Students)
UCU: 20 Organiser: Dr Dan Smith
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Coursework and Project
Timetable Slot:C2, D3

Human Computer Interaction (or UX) covers a very wide range of devices, including conventional computers, mobile devices and "hidden" computing devices. In this module you will learn about interactions from a variety of perspectives, such as cognitive psychology, ethnographic methods, security issues, UI failures, the principles of good user experience, heuristic and experimental evaluation approaches and the needs of a range of different audiences.

2020/1 - CMP-6040A ARTIFICIAL INTELLIGENCE

Autumn Semester, Level 6 module
(Maximum 42 Students)
UCU: 20 Organiser: Dr Wenjia Wang
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Examination with Coursework or Project
Timetable Slot:F2, A2
Exam Paper(hrs):2 Exam Period:SPR-02

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-4008Y

This module will introduce you to core techniques in Artificial Intelligence. Topics covered may include state space representation and search algorithms, knowledge representation, expert systems, Bayesian networks, Markov Models, Neural networks, Deep learning, and an Introduction to Robotics and Drone.

2020/1 - CMP-6044A INTRODUCTION TO CYBER SECURITY

Autumn Semester, Level 6 module
(Maximum 45 Students)
UCU: 20 Organiser: Dr Oliver Buckley
(UG) MODULE - 40% PASS ON AGGREGATE
Module Type: Coursework
Timetable Slot:C1, F1¦B1¦B3

This module will provide you with a broad understanding of the key topics and issues relating to cyber security. In the module we will use real-world examples and case studies to illustrate the importance of security. You will learn about a variety of cyber security topics including: the value of information and data, vulnerabilities and exploits, tools for defence and mitigation and the human elements of cyber security. Security is fast becoming an essential

part of all aspects of our daily lives and this module will provide you with the fundamental skills and knowledge for working in a range of industries.

2020/1 - CMP-6046A GENERALISED LINEAR MODELS

Autumn Semester, Level 6 module
(Maximum 999 Students)
UCU: 10 Organiser: Professor Elena Kulinskaya

Module Type: Examination with Coursework or Project
Timetable Slot:ANY
Exam Paper(hrs):

This module covers Linear and Generalised Linear models. It covers both the theory and practice of statistical model fitting and students will be expected to analyse real data using R.