

MODULE - 40% PASS ON AGGREGATE

Module Type: Examination with Coursework or Project

Timetable Slot:C2/*B3, D3|E2\+

Exam Paper(hrs):2

Exam Period:SPR-02

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-4008Y OR TAKE CMP-4009B

Explore how networks are designed and implemented to provide reliable data transmission. You'll take a layered approach to the study of networks, with emphasis on the functionality of the OSI 7 layer reference model and the TCP/IP model. You'll examine the functionality provided by each layer and how this contributes to overall reliable data transmission that the network provides, with a focus on the practical issues associated with networking such as real-time delivery of multimedia information (e.g. VoIP) and network security. Labs and coursework are highly practical and underpin the theory learnt in lectures.

2019/0 - CMP-5042B Applied Statistics

Spring Semester, Level 5 module

(Maximum 999 Students)

UCU: 10

Organiser: Professor Elena Kulinskaya

MODULE - 40% PASS ON AGGREGATE

Module Type: Coursework

Timetable Slot:ANY

Exam Paper(hrs):

This module considers both the theory and practice of statistical modelling of time series. Students will be expected to analyse real data using R.

2019/0 - CMP-5043B LINEAR REGRESSION USING R

Spring Semester, Level 5 module

(Maximum 35 Students)

UCU: 10

Organiser: Dr Aristidis K Nikoloulopoulos

MODULE - 40% PASS ON AGGREGATE

Module Type: Coursework

Timetable Slot:"B4*E3*A4,D1/D2/A3"

THIS MODULE WILL NOT BE AVAILABLE UNTIL 2020/21. This is a module designed to give students the opportunity to apply linear regression techniques using R. While no advanced knowledge of probability and statistics is required, we expect students to have some background in probability and statistics before taking this module. The aim is to provide an introduction to R and then provide the specifics in linear regression.

2019/0 - CMP-5044B UBIQUITOUS COMPUTING

Spring Semester, Level 5 module
(Maximum 45 Students)

UCU: 20

Organiser: Dr Min Aung

Module Type: Coursework and Project

Timetable Slot:F2, A2-G1\

Exam Paper(hrs):

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-4008Y OR TAKE CMP-4009B

In this module we will introduce the multifaceted topic of Ubiquitous Computing. You will learn about how computing power can be taken away from desktop computer setting and be applied anywhere. The module draws upon many other areas such as Signal Processing, Machine Learning, Human Computer Interaction, Internet of Things, Networks, and the use of hardware such as microcontrollers, various sensors to create systems that sense and interpret the outside world to help solve a wide range of problems. These systems can be wearable devices, smartphone apps that use the phone's sensors, or bespoke devices that can be deployed in buildings, vehicles, urban and natural environments. This is project and coursework orientated module with an emphasis on developing your own ideas to gain the skills needed to take the power of computing to be everywhere.

2019/0 - CMP-6002B MACHINE LEARNING

Spring Semester, Level 6 module
(Maximum 60 Students)

UCU: 20

Organiser: Professor Tony Bagnall

MODULE - 40% PASS ON AGGREGATE

Module Type: Examination with Coursework or Project

Timetable Slot:F1*A2\, B1;D1

Exam Paper(hrs):3

Exam Period:SPR-02

This module covers the core topics that dominate machine learning research: classification, clustering and reinforcement learning. We describe a variety of classification algorithms (e.g. Neural Networks, Decision Trees and Learning Classifier Systems) and clustering algorithms (e.g. k-NN and PAM) and discuss the practical implications of their application to real world problems. We then introduce reinforcement learning and the Q-learning problem and describe its application to control problems such as maze solving.

2019/0 - CMP-6003B SYSTEMS ENGINEERING

Spring Semester, Level 6 module
(Maximum 50 Students)

UCU: 20

Organiser: Dr Pam Mayhew

MODULE - 40% PASS ON AGGREGATE

Module Type: Examination with Coursework or Project

Timetable Slot:G2\, E1, G+;G/

Exam Paper(hrs):3

Exam Period:SPR-02

This module draws together a wide range of material and considers it in the context of developing modern large-scale computer systems. Topics such as Systems Thinking, Casual Loop Diagrams, Systems Failure, Outsourcing, Quality, Risk Management, Measurement, Project Management, Software Process Improvement, Configuration Management, Maintainability, Testing, and Peopleware are covered in this module. The module is supported by well documented case studies and includes guest speakers from industry.

2019/0 - CMP-6024B EMBEDDED SYSTEMS

Spring Semester, Level 6 module

(Maximum Students)

UCU: 20

Organiser: Dr Edwin Ren

MODULE - 40% PASS ON AGGREGATE

Module Type: Examination with Coursework or Project

Timetable Slot:H3, C1-B3\

Exam Paper(hrs):

BEFORE TAKING THIS MODULE YOU MUST TAKE CMP-5013A AND TAKE CMP-5027A

Embedded processors are at the core of a huge range of products e.g. mobile telephones, cameras, passenger cars, washing machines, DVD players, medical equipment, etc. The embedded market is currently estimated to be worth around 100x the 'desktop' market and is projected to grow exponentially over the next decade. This module builds on the material delivered in CMP-5013A to consider the design and development of real-time embedded system applications for commercial off the shelf (COTS) processors running real-time operating systems (RTOS) such as eLinux. Embedded processors are at the core of a huge range of products e.g. mobile telephones, cameras, passenger cars, washing machines, DVD players, medical equipment, etc. The embedded market is currently estimated to be worth around 100x the 'desktop' market and is projected to grow exponentially over the next decade. This module will help you to build on the material delivered in the Architectures and Operating Systems module to consider the design and development of real-time embedded system applications for commercial off the shelf (COTS) processors running real-time operating systems (RTOS), such as eLinux. Embedded processors are at the core of a huge range of products e.g. mobile telephones, cameras, passenger cars, washing machines, DVD players, medical equipment, etc. The embedded market is currently estimated to be worth around 100x the 'desktop' market and is projected to grow exponentially over the next decade. This module will help you to build on the material delivered in the Architectures and Operating Systems module to consider the design and development of real-time embedded

system applications for commercial off the shelf (COTS) processors running real-time operating systems (RTOS) such as eLinux.

2019/0 - CMP-6034B ALGORITHMS FOR BIOINFORMATICS

Spring Semester, Level 6 module

(Maximum 20 Students)

UCU: 20

Organiser: Dr Steven Hayward

MODULE - 40% PASS ON AGGREGATE

Module Type: Examination with Coursework or Project

Timetable Slot:F2*D3\, E2\+

Exam Paper(hrs):3

Exam Period:SPR-02

A brief introduction to the basics of molecular biology will be given, and so no background in biology is required. Topics will include sequence analysis, RNA and protein structure, genome assembly and phylogenetics. Lecturers will highlight the relevance of the material to cutting-edge research and in applications such as understanding human diseases, developing new drugs, improving crop plants, and uncovering the origins of species. Emphasis will be focused on the fundamental algorithms that are used in each of these areas.

2019/0 - CMP-6035B COMPUTER VISION

Spring Semester, Level 6 module

(Maximum 30 Students)

UCU: 20

Organiser: Dr Michal MacKiewicz

MODULE - 40% PASS ON AGGREGATE

Module Type: Coursework

Timetable Slot:G2+/, D3!E2\+

Exam Period:SPR-02

BEFORE OR WHILE TAKING THIS MODULE YOU MUST TAKE CMP-4005Y OR TAKE CMP-5006A OR TAKE CMP-5020B OR TAKE CMP-4009B OR TAKE CMP-6026A OR TAKE CMP-6006A OR TAKE CMP-6002B

Computer Vision is about “teaching machines how to see”. You will study methods for acquiring, analysing and understanding images in both lectures and laboratories. The practical exercises and projects that you undertake in the laboratory will support the underpinning theory and enable you to implement contemporary computer vision algorithms.

2019/0 - CMP-6044B INTRODUCTION TO CYBER SECURITY

Spring Semester, Level 6 module

(Maximum Students)

UCU: 20

Organiser: Dr Oliver Buckley

MODULE - 40% PASS ON AGGREGATE

Module Type: Coursework

In this module we will introduce the multifaceted topic of Ubiquitous Computing. You will learn about how computing power can be taken away from desktop computer setting and be applied anywhere. The module draws upon many other areas such as Signal Processing, Machine Learning, Human Computer Interaction, Internet of Things, Networks, and the use of hardware such as microcontrollers, various sensors to create systems that sense and interpret the outside world to help solve a wide range of problems. These systems can be wearable devices, smartphone apps that use the phone's sensors, or bespoke devices that can be deployed in buildings, vehicles, urban and natural environments. This is project and coursework orientated module with an emphasis on developing your own ideas to gain the skills needed to take the power of computing to be everywhere.