DEPARTMENT

OF

COMPUTER SCIENCE AND INFORMATION SYSTEMS

MSc/PGDip

in

Information Systems & Management

COURSE ARRANGEMENTS

2017 - 2018

Contents

Overview of the MSc Information Systems & Management Programme

Important Contacts

Programme Director & Admissions Tutor:	David Wilson (dave@dcs.bbk.ac.uk)
Projects Tutor (DCSIS)	Oded Lachish (oded@dcs.bbk.ac.uk)
Projects Tutor (DoM)	Geoff Walters (g.walters@bbk.ac.uk)
Programme Administrator:	Zahra Syed (PGAdmin@dcs.bbk.ac.uk)

Student Support

Every student is allocated a personal tutor in the early weeks of the programme in the Department of Computer Science and Information Systems (DCSIS), which is the host department. The personal tutor is a member of staff whom students can contact to discuss any problems of a non-academic nature. These may relate to special needs or personal problems that may affect the student's academic performance. The Department also has a disability officer whom students can contact. Academic problems should first be addressed to the lecturer concerned. If the problem is not resolved or it does not relate to a specific module, then the Programme Director should be contacted.

On the College's MyBirkbeck web site,

http://www.bbk.ac.uk/mybirkbeck ,

students can find gateways to much detailed information and advice.

The student support services are easily found at

http://www.bbk.ac.uk/mybirkbeck/student-services .

It is expected that students will familiarise themselves with these pages so that they are aware of regulations and the services available.

Another forum for raising issues is the Student-Staff Exchange Committee. Student representatives, who are elected by the students, meet lecturing staff on the programme, once a term to exchange ideas about the programme. This allows students to communicate their shared concerns in an informal manner, and for the staff to react and respond speedily to address student's concerns when appropriate or to feed concerns to other appropriate forums. Whilst the style is informal and expeditious, minutes of issues are taken and responses and actions are reported to the next meeting.

Studying in two Departments

The MSc in Information Systems & Management is a programme for graduates of information systems, computing, or management focussing on practical aspects of information systems development, modern management topics, and contextual issues of Information Technology. Students who complete this programme will have gained in-depth knowledge, which they will be able to use in:

- Analysis and solution design for problems arising in information systems and in the management of IT;
- Evaluation of technology options;
- Information systems development;
- Technology-driven organisational change;
- Technology-based innovation.

The programme is designed for mid-career professionals in either Management or Computing who will be further empowered by developing new knowledge from both of those domains. Hence the programme is taught in both the Department of Computer Science and the Department of Management and a selection of modules, related to Information Systems, offered by the Department of Geography is permitted in the programme.

The two Departments, which are both constituents of the School of Business, Economics and Informatics, currently operate in significantly different ways though there are plans for eventual alignment.

Traditionally the Department of Computer Science and Information Systems and the Department of Geography have offered 15 and 30 credit modules over two teaching terms (autumn and spring). Some 15 credit modules are taught over both terms whilst some 30 credit modules are taught in one or both terms. In the Summer Term, DCSIS students are offered revision lectures in the first four weeks and examinations normally commence about week 5.

There is an emphasis on problem statement, solution design and implementation in modules taught in the DCSIS and a project or dissertation supervised in the DCSIS will have a 20% assessment of the problem solution proposal which will be required to be submitted on a particular date before the commencement of the Summer Term in which the project or dissertation is to be performed. Students undertaking this kind of project or dissertation are strongly advised to seek acceptance for supervision by DCSIS staff before submitting their proposal essay otherwise they may be arbitrarily assigned a supervisor by the DCSIS projects tutor. Acceptance will normally require some e-mail correspondence and may require an explanatory tutorial which the student must arrange with the tutor. Students taking a non-implementation project supervised in the DCSIS must take the DoM's Research Methods 1 module.

The Department of Management has adopted a practice of three term working in which most modules are examined in the final week of the term in which they are taught or in the first week of the following term. Currently it is not possible for students to take DoM modules offered in the Summer Term.

DoM dissertations are normally research based examinations of phenomena related to the subjects taught. For this programme, they should relate to both aspects of the programme (i.e Information Systems and Management). Typically, this would be how some aspect of computing affects the management of a real-world situation or how an aspect of an Information System may be managed. To undertake a dissertation in the DoM, students must study the Research Methods 1 module and write a proposal essay before the submission date. The DoM project tutor will assign a tutor. The DoM publishes a dissertations handbook to help guide this form of dissertation.

Getting an Award

Full-time students follow taught modules to a credit value of 120 made up of half modules worth 15 credits and full modules worth 30 credits as well as undertaking a 3 - 4 month project or dissertation (in either Department) worth 60 credits. Part-time students normally follow taught modules to a value of 60 credits in each of the two years and the dissertation component in the second year. All students take two compulsory modules:

- Project Management for Informatics (PMI) (15 credits)
- Information Systems (IS) (15 credits)

Students, known as the Management Entry stream, who enter on the basis of a degreethat does not include taught algorithmic programming, are required to take:

- Introduction to Software Development (ISD) (30 credits)

Students choose further modules valued at either 15 or 30 credits, to complete a total of 120 credits. It is not permissible to study units to a total of more than 120 credits during registration on the Programme.
Modules that are compulsory for some students may be taken by other students as options, subject to other constraints.
Students, who have not taken the module as part of their undergraduate study, may select the following level 6 module. If selected it must be passed at the MSc passing level (50%). Marks from this module will not be included in the calculation of weighted average.

- Database Management (DM) (15 credits)

The following Level 7 options are taught in the Department of Computer Science and Information Systems.

- Cloud Computing (CC) (15 credits)
- Computer Systems (CS) (15 credits)
- Data & Knowledge Management (DKM) (15 credits)
- Fundamentals of Computing (FoC) (15 credits)
- Internet and Web technologies (IWT) (15 credits)
- Information and Network Security (INS) (15 credits)
- Software Design and Programming (SDP) (15 credits)
- Semantic Technologies (SW) (15 credits)
- Strategic Information Systems Planning (15 credits)

The following Level 7 options are taught in the Department of Management (DoM)
NB some DoM modules are only offered on alternate years.

- Creative Industries: Theory and Contexts (CI) (15 credits)
- Digital Creativity and New Media Management (DC) (15 credits)
- Innovation: Management & Policy (IMP) (15 credits)
- Innovation Systems, Networks & Social Capital (INC) (15 credits)
- Intellectual Capital & Competitiveness (ICC) (15 credits)
- Principles of Management (POM) (15 credits)
- Research Methods 1 (RMM1) (Compulsory for students attempting non-implementation dissertations) (15 credits)
- Strategic Management (SM) (15 credits)

The following Level 7 options are taught in the Department of Geography (DoG)

- Introduction to Geographic Information Systems (IGIS) (15 credits)
- Geovisualization and Web GIS (WGIS) (15 credits) (requires IGIS and programming knowledge)

Please note that the list of optional modules available may vary from year to year, and that choices are subject to timetabling constraints.
The information in this booklet is specific to the MSc in Information Systems & Management. More information about the programme is available from the web page www.dcs.bbk.ac.uk/courses/mism/. Links from this page lead to pages showing up-to-date changes that may affect your study so you should consult this web site on a regular basis since additional information may be posted there during the year.

Dates

Induction & Re-induction

1st year Part-timers: Thursday, 28th. Sept. 2017 6.00 – 8.00 PM. (M151)
2nd year Part-timers: Thursday, 28th. Sept. 2017 7.00 – 8.00 PM. (M151)
Full-timers: Monday 2nd. October 2016 11.00 AM – 1.30 PM (Lab 407)
The Department of Management also run an induction event which is useful to new students on the programme. It is on Friday the 29th September in Room B01 of the Clore Management Centre from 6.00 PM – 9.00 PM.

Induction Venues.

Department of Computer Science & Information Systems, Lab 407, Fourth Floor, Birkbeck, Main Building, Malet Street.
Department of Management: To be confirmed.

The induction sessions, which all new students should attend, in the Department of Computer Science, will include a short hands-on introduction to the department's computer systems, college library and other arrangements. It would be helpful if as many students as possible could arrive up to half an hour early for these sessions, to complete some administration. During the sessions students will be given further guidance for option selection.

Part-time students should have completed an option form before the 1st September.
The Department of Management induction is also invaluable for students on this programme.

Term dates

The taught course covers two terms of eleven weeks each for most subjects shown as Term 1 and Term 2 in the timetable below. These may also be referred to as the Autumn Term (1) and the Spring Term (2) The Summer Term is given over to revision, exams and the beginning of dissertations. None of the subjects of this programme are offered in the Summer Term. The term dates for the coming year are:

Autumn	Mon 2nd. Oct. 2017	-	Fri 15th. Dec. 2017
Spring	Mon 8th. Jan. 2018	-	Fri 23rd. March 2018
Summer	Mon 23rd. April 2018	-	Fri 6th. July 2018

Lectures begin on Monday 2nd. October in the Autumn term, and on Monday 8th. January in the Spring term. Students should attend lectures during term time as shown in the module descriptions. Many lecturers in DCSIS maintain personal teaching pages on the department's own computing facilities but all modules will have a moodle page on the IT Services facilities. IT Services are responsible for the systems that support College level administration. Extensive use is made of the moodle facilities. It is important to complete registration as early as possible as this is key to interacting with those facilities of the College which makes every effort to interact with students through current personal technology.
Lecture theatres, class and seminar rooms and laboratories in Birkbeck have RDIF touch-in pads for you to register your attendance of a session with your Birkbeck Identity card. Some contact sessions take place in non-Birkbeck venues and attendance signing sheets will be available during those. Please touch-in or sign to show you have attended. If you are going to be absent for a prolonged period, please advise the administrator and programme director, preferably in advance.
Any student who decides to withdraw from the course should inform the Programme Administrator, in writing or by email. Students who simply stop turning up for lectures without formally withdrawing from the course will still be held liable for fees.

College holiday closing

Christmas and New Year Closure: The College will close at 6pm on 21st December 2017, and normal services will resume from 9am on 3rd January 2018.

*Easter closure**:*** The College will close at 6pm on 28th March 2018, and normal services will resume from 9am on 4th April 2018.

Bank Holidays: At the time of publication of this booklet there is no information on whether the College will be closed for these events. Students should access the College web-site for this information closer to the event.

Timetable

Term	Day	Start Time	Finish Time	Module	Compulsory	Credits	Notes
1	Mon	18:00	21:00	INS		15	
1	Mon	18:00	21:00	SW		15	
1	Mon	18:00	21:00	POM		15	
1	Mon	18:00	21:00	IGIS		15	
1	Tue	18:00	21:00	ICC		15	
1	Wed	18:00	21:00	IMP		15	
1	Wed	18:00	21:00	CI		15	
1	Wed	18:00	19:30	FoC		-	continues inT2
1	Wed	19:30	21:00	IS	for all PT Students	-	continues inT2
1	Thur	13.30	15:00	IS	for all FT Students	15	
1	Thur	18:00	21:00	DKM		15	
1	Fri	18:00	21:00	ISD	for Management Entry Students	30	Continues in T2/Mon
1	Fri	18:00	21:00	CC		15	
1	Fri	18:00	21:00	RMM	If taking non-implementation project	15	FT instance (except Management Stream)
2	Mon	18:00	21:00	ISD	for Management Entry Students		Continued from T1/Fri
2	Tue	18:00	21.00	PMI	for all students	15	
2	Tue	1:30	5:00	SDP		15	
2	Tue	18:00	21:00	RMM	If taking non-implementation project	15	PT instance
2	Tue	18:00	21:00	IWT		15	
2	Wed	1:30	5:00	CS		15	
2	Wed	18:00	19:30	IS	for all PT Students	15	FT Instance
2	Wed	19:30	21:00	FoC		15	note time change
2	Wed	18:00	21:00	INC		15	
2	Wed	18:00	21:00	DM		15	
2	Thur	13.30	15:00	IS	for all FT Students	15	
2	Thur	18:00	21:00	DC		15	
2	Thur	18:00	21:00	SDP		15	
2	Thur	18:00	21:00	SISP		15	
2	Thur	18:00	21:00	SM		15	
2	Thur	18:00	21:00	CS		15	
2	Thur	18:00	21:00	WGIS		15	

The times at which modules are offered are shown in the table above.

Students should advise the Post Graduate Administrator of the modules they intend to attempt as early as possible so that they may be enrolled onto modules. All students must take Information

Systems and Project Management for Informatics and will be enrolled onto these in their first year. If the Admissions tutor has informed that you are “Management Entry Stream” you will also be enrolled onto Introduction to Software Development.

Part-time students may attempt up to 90 credits in a single Academic year, but this is ill-advised and students are strongly advised to balance their studies normally taking 60 credits in each of two years. It is not permissible to take more than 120 taught credits over the course of the programme.

You may select any modules as options shown in this Programme Booklet including those which are not compulsory for you.

Compulsory modules must be taken before optional modules where the schedule allows.

Syllabus and reading lists

Lectures aim to introduce the key concepts of each module. The specific objectives of each module and the principal readings are shown in the Moodle pages for the instance of the module that you will be enrolled on. The reading lists for individual modules given in this handbook are indicative – lecturers will specify, usually at the first lecture, whether specific books should be purchased for particular modules.

Students can contact lecturers outside the classroom to discuss the material. They can contact them via email either to discuss a problem or to make an appointment. Lecturers' contact details are given on the Departments' web sites.

Several modules require students to submit coursework as part of the assessment. Such coursework must always be the student's own work, except where group activities are explicitly stated. The Department and College have strict guidelines and penalties associated with plagiarism, and routinely submit students' work to plagiarism detection services. More details are in the section on "Plagiarism" of this booklet.

Compulsory modules (for all students)

Information Systems

Aims
The primary aim of the module is to help students understand how information and communications technologies are deployed and to make informed professional decision about IS development in fast changing socio-technical environments. This include understanding how to use information processing constructs including files and data schemata, programs and other coded units, and the contexts to which they will be fitted. A subsidiary aim is to introduce students to some of the practical aspects associated with a career as an IS professional, and to describe key social and organisational aspects of enterprise computing.

Content
The module describes approaches, processes, methodologies and techniques commonly used for large-scale information systems development. It covers the systems development life cycle (SDLC), including project initiation, analysis, design and implementation, addressing key aspects and techniques at each stage, such as the use of class and object diagrams. Several project methodologies are described, including Agile (Scrum) methodology. The module also incorporates insights into professional and legal issues surrounding Information Systems development.

Module Convenor
Brian Gannon

Assessment
By 2-hour written examination and practical coursework, weighting 80% and 20% respectively.

Online material
http://moodle.bbk.ac.uk/

Syllabus
Theories of Information Systems
The Information Systems Development Life Cycle
Project Initiation - Identification and Selection
Requirements Analysis & High Level Design
Detailed design, including Architecture, DB design and UI design
IS implementation
Agile methodologies
IS in everyday life
IS contracts and legal issues
Data Protection, Freedom of Information and Intellectual Property Rights
Computer Misuse and Information Surveillance

Readings will be indicated from multiple sources including

Dennis, Wixom, Tegarden, Systems Analysis and Design with UML, International Student Version, latest edition

Project Management for Information Systems

Aims

The module will develop students understanding of Project Management issues in Informatics. Students will understand the key issues surrounding Project Management and Project Management practice in Information systems projects. The will be aware of current issues in Informatics Project Management and develop confidence in assessing, presenting and discussing those in seminars.

Module Convenor

David W. Wilson

Assessment

2-hour written examination (80%) ; Seminar Presentation, participation and critique (20%)

Online material

http://www.dcs.bbk.ac.uk/~dave/teaching

Syllabus

Project Management and the SDLC
Estimating for Informatics projects
Scheduling and resourcing
Current practice in Large Information Infrastructure Projects
Project Human Resource Management
Critical Path and PM Tools
Agility in Project Management

Recommended Reading

Lecturer prepared notes.
Academic papers as advised by the module convenor.
Cadle & Yeates Project Management for Information Systems, 5th edition Pearson ISBN 9780132068581

Compulsory module (for Management Entry Stream)

Introduction to Software Development

Prerequisites
None. However, students should work through the first chapter of the course text - see recommended reading.

Aims
The main aim of this module is to allow students who hold a first degree in a subject other than computing to gain understanding of solving computational problems and of the software development process, which are fundamental to the study of information systems and Information Systems & Management.

The module covers the principles of designing, implementing and testing programs, with a specific focus on object-oriented design. The module explains the fundamental aspects of these techniques utilising a series of practical lab sessions. Students will be able to apply this knowledge in learning new programming languages, developing software systems, and managing software development projects within given time constraints.

Module Convenor
David Weston

Assessment
By 2-hour written examination and practical coursework, weighting 50% and 50% respectively.
Online material
http://moodle.bbk.ac.uk/

Syllabus
The software development process.
Principles of programming and programming languages.
Solving computational problems (problem decomposition, abstraction, sequencing, branching, iteration).
Classes, objects, variables, values, types, arithmetic operations, control expressions, methods, string manipulation, exceptions, arrays, collections, documentation.
Designing, implementing and testing programs.

Reading
Python for Everyone, 2nd Edition by Cay S. Horstmann and Rance D. Necaise, John Wiley Sons; 2016, ISBN: 978-1-119-05655-3 (Course text)
Practical Programming: An Introduction to Computer Science Using Python 3 by Paul Gries, Jennifer Campbell, and Jason Montojo, Pragmatic Bookshelf; 2013, ISBN: 978-1937785451

Python Programming for Beginners by Jason Cannon, CreateSpace Independent Publishing Platform; 2014, ISBN: 978-1501000867

Python for Kids: A Playful Introduction to Programming by Jason R. Briggs, No Starch Press; 2012, ISBN: 978-1593274078

Think Python by Allen B. Downey, O'Reilly Media; 2012, ISBN: 978-1449330729

Learning Python by Mark Lutz, O'Reilly Media; 2013, ISBN: 978-1449355739

Optional module Level 6

Database Management

(Students who have a first degree in computing or relevant equivalent knowledge and experience should consider taking the Level 7 module, Data and Knowledge Management. Students may not select both of these modules.)

Aims

To familiarise students with the main concepts underlying database management, and in particular with the relational database model which is the dominant database system used within corporate IT departments.

The course has three main strands:
(1) Fundamental concepts introduced using the Entity-Relationship model,
(2) Querying a relational database, and
(3) Relational database design.

Module Convenor

Peter Wood

Assessment

By 2-hour written examination and practical coursework, weighted 80% and 20% respectively.

Online material

http://www.dcs.bbk.ac.uk/~ptw/teaching/DBM/index.html

Syllabus

Entity Relationship Model
Relational Model
Querying a Relational Database
Updates, Views and Transactions
Integrity Constraints in the Relational Model
Relational Database Design
Normal Forms
Normalisation Algorithms
Non-Relational Databases
SQL Programming and the Web

Reading

J.D. Ullman and J. Widom, A First Course in Database Systems, Third Edition, Prentice Hall, 2008.
A.B. Silberschatz, H.F. Korth and S. Sudarshan, Database System Concepts, Sixth Edition, McGraw-Hill, 2011.
T. Connolly and C. Begg, Database Systems: A Practical Approach to Design, Implementation, and Management, Fifth Edition, Addison-Wesley, 2010.

Optional modules Level 7 DCSIS

Cloud Computing

Prerequisites
Good knowledge of programming would be necessary. Students who did not have much experience in this area before joining their respective MSc programmes should have taken the ISD (BUCI021S7) module before enrolling on this module.

Aims
This module aims to introduce back-end cloud computing techniques for processing "big data" (terabytes/petabytes) and developing scalable systems (with up to several million users). We focus mostly on MapReduce which is presently the most accessible and practical means of computing for "Web-scale" problems, but will discuss other techniques as well.

Learning Objectives
On completion of the module, students will

1. understand the emerging area of cloud computing and how it relates to traditional models of computing;
2. have competence in MapReduce as a programming model for distributed processing of big data.

Module Convenor
Dell Zhang

Assessment
A couple of programming assignments, weighting 20%.
A 2-hour written examination (unseen), weighting 80%.

Syllabus
Introduction to Cloud Computing
Cloud Computing Technologies and Types
Big Data
MapReduce and Hadoop
Running Hadoop in the Cloud (Practical Lab Class)
Developing MapReduce Programs
Data Management in the Cloud
Information Retrieval in the Cloud
Link Analysis in the Cloud
Beyond MapReduce
Selected Case Studies
Advanced Topics in Cloud Computing

Online Material
http://www.dcs.bbk.ac.uk/~dell/teaching/cc/

Reading
Jothy Rosenberg and Arthur Mateos, *The Cloud at Your Service*, Manning, 2010.
Jimmy Lin and Chris Dyer, *Data-Intensive Text Processing with MapReduce*, Morgan and Claypool, 2010.
Extensive use is made of other relevant book chapters and research papers that are distributed or provided online.

Computer Systems

Aims

To learn the basics of computer architecture and organisation, and the role and mechanism of operating systems.

Module Convenor

Szabolcs Mikulas

Assessment

By 2-hour written examination and coursework, weighting 90% and 10% respectively.

Online material

http://www.dcs.bbk.ac.uk/szabolcs/compsys.html

Syllabus

Introduction: Computer Architecture and Operating System overview
Processors
Processes and threads
Concurrency
Memory management
I/O and file systems
Protection and security
Distributed and parallel processing

Reading

Textbook:
W. Stallings, Operating Systems, Internals and Design Principles, Prentice Hall, 5th edition, 2005, or 6th edition, 2008

Recommended reading:
W. Stallings, Computer Organization and Architecture: Designing for Performance, Prentice Hall, 7th edition, 2006
A.S. Tanenbaum, Modern Operating Systems, Prentice Hall, 2nd edition 2001, or 3rd edition, 2008

Data and Knowledge Management

Pre-requisite
A first degree in Computing or relevant equivalent knowledge and experience. (Students who do not meet this criterion should take Database Management – students may not take both of these modules)

Aim
To study the principles and application of data and knowledge management technology

Module Convenor
Nigel Martin

Assessment
By 2-hour written examination (90%) and practical coursework (10%).
Online Materials
http://www.dcs.bbk.ac.uk/~nigel/teaching/dkm/

Syllabus
Database management software: origins and objectives.
The relational model: algebraic and logical foundations.
Relational algebra and calculus.
SQL: data manipulation, host language support for SQL.
Transaction management: recovery, concurrency.
Relational database theory: dependencies, normal forms.
SQL data definition, other features.
DBMS architectures and implementations.
DBMS storage and indexing.
Query optimisation.
Enhanced database capabilities:procedural extensions to SQL, database triggers, deductive databases.
Non-relational DBMS, Object databases, NoSQL databases
Distributed databases, distributed architectures and connectivity.
Databases and the Web, Java database programming - JDBC, SQLJ, databases and XML.
Database research topics

Reading
R. Ramakrishnan, J. Gehrke, *Database Management Systems* (3rd ed.), McGraw Hill, 2003, ISBN 0-07-246563-8.
Students will also be directed to Web resources on the subject.

Fundamentals of Computing

Aims

Discrete mathematics, mathematical logic, and the related fundamental areas of data structures and algorithms lie at the heart of any modern study of Computer Science. Understanding how computers operate and how to use them effectively and efficiently, in terms of either their hardware or software, involves a number of mathematical concepts.

This module introduces and develops mathematical notions, data structures and algorithms that are used in various areas of Computer Science.

Module Convenor

Michael Zakharyaschev

Assessment

By 3-hour written examination and coursework exercises, weighting 80% and 20% respectively.

Online material

http://www.dcs.bbk.ac.uk/~michael/foc/foc.html
http://www.dcs.bbk.ac.uk/~trevor

Syllabus

Numbers: integer, rational, and real. Numeral systems.
Arithmetic for computers.
Digital logic (combinational circuits).
Elements of set and graph theories.
Finite state machines (automata) and regular languages.
Turing machines.
Data structures: representations and operations.
Lists, trees, forests, binary trees.
Tree traversal and other operations; binary search trees.
Organisation of disk storage; methods of file organisation; B-trees.
Algorithms: design and analysis; algorithmic complexity; space utilisation.
Sorting and searching.

Reading

D. Patterson and J. Hennessy, Computer Organization and Design: The Hardware/Software Interface. Morgan Kaufmann; 3 edition, 2007.
E. Kinber and C. Smith, Theory of Computing. A gentle introduction. Prentice Hall, 2001.

Information and Network Security

Aims

Information security is about protecting information (and information systems) against unauthorised access and tampering. Avoiding security breaches has a high priority for organisations storing and handling confidential data.

The main aim of this module is to provide broad coverage of the field of information security. This course covers the technical as well as the management side of security in information systems. Despite being an essential part of security, technical methods such as cryptography are not enough to guarantee a high level of security. They have to be embedded into a wider context in order to make them more effective. Users of technology have to understand the underlying principles and follow certain policies to avoid security breaches. This module introduces the fundamental approaches to security engineering and includes a detailed look at some important applications.

Module Convenor

David Weston

Assessment

By 2-hour written examination and practical coursework, weighting 80% and 20% respectively.

Syllabus

Overview of Information Security
Access Control Matrix Model
Security Policies
Social Engineering
Basic Cryptography
Identity Management
Access Control Mechanisms
Confinement
Assurance and Trust
Network Intruders and Intrusion Detection
Firewalls and Malicious Software
Cryptographic Protocol Concepts
Authentication
Key Exchange
Economics of Information Security

Online material

http://moodle.bbk.ac.uk/

Reading

Keith M. Martin, Everyday Cryptography: Fundamental Principles and Applications, 2012, ISBN 978-0-19-969559-1
Ross Anderson, Security Engineering 2nd edition, John Wiley & Sons, 2008, ISBN 978-0-470-06852-6
William Stallings, *Cryptography and Network Security* 5th edition, Pearson, 2010, ISBN 978-0136097044
Matt Bishop, Computer Security: Art and Science, Addison-Wesley, 2002, ISBN 978-0201440997
Bruce Schneier, Applied Cryptography, John Wiley & Sons, 1996, ISBN 0-471-11709-9

Internet and Web Technologies

Pre-requisite or co-requisite

A first module in programming, e.g. Introduction to Software Development.

Aims

To provide students with an understanding of how network protocols work, particularly those used on the Internet, and the ability to present and manipulate information on the World Wide Web, with an emphasis on XML.

Module Convenor

Peter Wood

Assessment

By 2-hour written examination and practical coursework, weighted 80% and 20% respectively.

Online material

http://www.dcs.bbk.ac.uk/ptw/teaching/IWT.html

Syllabus

Introduction to the Internet and its applications
Web languages (e.g., HTML, XHTML, XML, JSON)
Languages for defining Web document types (e.g. DTDs)
Web query and transformation languages (e.g. XPath, XSLT)
Client-side processing (e.g. using Javascript, DOM, jQuery)
Server-side processing (e.g. using CGI, Perl, PHP)
The transport layer (e.g., TCP, UDP)
The network layer (e.g., IP, DHCP, ICMP)
The link layer (e.g., Ethernet, ARP)

Reading

Sas Jacobs, Beginning XML with DOM and AJAX. Apress, 2006, ISBN 1-59059-676-5.

James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach (6th edition), Pearson, 2012, ISBN 0-27-376896-4.

Anders Moller and Michael Schwartzbach, An Introduction to XML and Web Technologies. Addison Wesley, 2006, ISBN 0-321-26966-7.

Search Engines and Web Navigation

(NB not available during 2017/18)

Pre-requisite

A first degree in Computing or relevant equivalent knowledge and experience.

Aims

To familiarize the student with the main technologies that underpin the World Wide Web (WWW), with an emphasis on search engines and web navigation, which provide us with a variety of tools that assist us in finding our way around the web. The module has three main strands: (1) Technical Foundations, (2) Core Technologies and (3) Emerging Technologies. An important aim of the module is to enable the student to experiment with the various tools and to understand the convergence of these technologies within the WWW.

Module Convenor

Mark Levene

Assessment

By 2-hour written examination and weekly practical coursework. The written examination will have a weighting of 80% and the coursework a weighting of 20% of the final mark.

Online Material

http://www.dcs.bbk.ac.uk/~mark/webtech.html

Syllabus

How the WWW operates - some history and terminology
The structure of the web
Link analysis on the web
Searching the web
Navigating the web
Web usage mining
Recommender systems and collaborative filtering
The mobile web

Reading

M. Levene, An Introduction to Search Engines and Web Navigation, Pearson Education, 2005, ISBN 0321306775.

Semantic Technologies

Pre-requisite

Some familiarity with formal (programming, query, XML, etc.) languages is desirable but not essential.

Aims

- to introduce the theoretical foundations of Semantic Technologies, including the languages RDF/S, SPARQL, the Web Ontology Language OWL;
- to provide the students with practical skills of modelling data using RDF/S, querying RDF triplestores, and building ontologies;
- to overview the current applications of Semantic Technologies in health care, media management, and industry;
- to demonstrate a few standard algorithms for classification of concepts in ontologies.

Module Convenor

Michael Zakharyaschev

Assessment

By 2-hour written examination and by practical coursework. The written examination will have a weighting of 80% and the coursework a weighting of 20% of the final mark.

Online Material

http://www.dcs.bbk.ac.uk/~michael/st/st.html

Syllabus

1. Introduction to the module. Ontologies in (Computer) Science. Knowledge graphs. Schema.org. Wikidata. Lab: building a Don Corleone family ontology.
2. Is XML a semantic technology? The tree model of XML documents, XML Schema. Querying XML documents, XPath, JSON. Lab: building a pizza ontology.
3. Resource Description Framework (RDF). RDF Schema. RDF/S semantics. Terse RDF Triple Language Turtle. Linked Data. Lab: extracting RDF data from natural language texts.
4. SPARQL Query Language. Querying RDF triplestores. Lab: setting up and querying Apache Jena triplestore.
5. Ontology-based data access (OBDA). OBDA platform Ontop. Lab: setting up ontology-based access to the IMDB database.
6. Requirements for ontology languages. From RDFS to OWL. OWL ontologies.
7. Ontology engineering. OWL ontologies in life sciences and industry. Lab: designing a travel agent's ontology
8. Open vs closed worlds. Reasoning with OWL. Introduction to Description Logic and formal semantics.

Recommended reading

G. Antoniou and F. van Harmelen. A Semantic Web Primer. MIT Press, 2004.
P. Hitzler, M. Kroetzsch and S. Rudolph. Foundations of Semantic Web Technologies. Chapman & Hall, 2009.
P. Szeredi, G. Lukacsy and T. Benko. The Semantic Web Explained. The technology and mathematics behind Web 3.0. Cambridge University Press, 2014.

Software Design and Programming

Pre-requisite

Pass in the Programming in Java module; or a distinction level pass in the Introduction to Software Development module; or an appropriate level of experience with a modern programming language otherwise.
(Note: ISD students wishing to take this module in the same year as they take ISD will be required to pass a test to gain entry.)

Aims

The main aim of the module is to provide students with the necessary skills for developing software utlising the object-oriented and functional programming paradigms, with Java 8. This ranges from learning object-oriented concepts, designing object-oriented software using a proven methodology and tools, to learning how to program in an object-oriented and functional style. The module provides detailed examination of Software Design Patterns, and the emerging functional features of current day object-oriented programming languages.

Module Convenor

Keith Mannock

Assessment

By 2-hour written examination and coursework exercises weighting 80% and 20% respectively.

Online material

http://moodle.bbk.ac.uk/

Syllabus

The object model and how it is realised in various object-oriented languages (e.g., Java, Scala, Ruby, C++, ...)
Further development the ideas of inheritance and polymorphism (including a revision of parametric polymorphism)
Language features: inner classes, closures, higher-order functions, meta-objects, etc.
An introduction to Test Driven Design (TDD) and Behavioural Driven Design (BDD)
The use of an Integrated Development Environment (IDE) for software development: e.g., editing, debugging, compilation, etc.
Modularity, versioning, packaging, and managing the build process
Design Patterns and *Anti-Patterns* and their application to software design
The SOLID (Single responsibility, Open-closed, Liskov substitution, Interface segregation and Dependency inversion) approach to object oriented programming and design
Code refactoring and analysis
Graphical User Interfaces and frameworks
Persistence Frameworks
Concurrency and agents/actors

Reading

Design Patterns: Elements of Reusable Object-Oriented Software by E. Gamma, R. Helm, R. Johnson, and J. Vlissides, Addison Wesley, 1994
Object Oriented Design and Patterns by Cay Horstmann, John Wiley, 2007
Head First Design Patterns by Eric Freeman, Elisabeth Robson, Bert Bates, and Kathy Sierra, O'Reilly, 2004
C++ Primer (Fifth Edition) by Stanley Lippman, et al., Addison Wesley, 2012
Java for Everyone (2nd Edition) by Cay S. Horstmann, John Wiley & Sons; 2012, ISBN 978-1118063316
Introduction to Programming Using Java, Sixth Edition by David J Eck, 2011, online textbook, http://math.hws.edu/javanotes/
Bennet S, McRobb S & Farmer R (2006): Object-Oriented Systems Analysis and Design using UML, 3/e, McGraw-Hill. ISBN 0077110005

Strategic Information Systems Planning

Aims

The module aims to bring together Strategic Management and Strategic Information Systems concepts empowering the student to participate in identifying, developing and managing strategic information systems.

Learning objectives

On completion of the module students will,

- have a deep understanding of the Socio-Technical approach to the deployment of Information Technology in modern organizations,
- have an understanding of frameworks for analyzing strategic issues of IS deployment.
- be familiar with the most cogent current issues of IS Strategy
- have developed confidence in addressing an audience and skills of explanation and persuasion.

Module Convenor

David Wilson

Assessment

One two-hour written examination (60%), Case Study critique (24%) presentation (16%).
N.B. Students who do not make a presentation cannot accrue marks from the Case Study critique and are deemed not to have made a serious attempt at the coursework.

Syllabus

Differentiating SIS, SIM, SISP
Strategic IS Alignment & Capability
Package Based Approaches
Innovation & Organisational Change
21st Century Markets
Outsourcing and Off-shoring
Knowledge Management Strategies
Evaluation and Risk Management for Information Systems

Online Material

http://moodle.bbk.ac.uk

Recommended Reading

Galliers RD, Leidner DE, Strategic Information Management, 4th[rd] ed. Routledge 2009.
Extensive use is made of relevant journal papers which are provided on-line or distributed.

Optional modules Level 7 DoM

Creative Industries: Theory and Context (part 1)

Aims

Introduce and critique the key debates and theoretical approaches to studying Creativity and Management.
Reflect on the particularities of Management processes in the Creative Industries.
Review and analyse management concepts and applications in the context of the Creative Industries.
Critically discuss the specific context of the Creative Industries and its developments.

Learning objectives

By the end of the module students will be able to:

Identify and evaluate the major theoretical approaches to, and principles of, management and organisation in the context of the creative industries.
Understand and develop a critical understanding of the activities, structures, and processes involved in the management in the creative industries
Develop a critical and reflexive approach to the discourse of creativity in management.
Understand the main contextual issues and the current transformations in the creative industries.
Discuss the social, economic and political contribution of these sectors in various contexts.

Module Convenor

Klaus Nielsen

Recommended reading

Bilton, Chris (2007) Management and Creativity: From Creative Industries to Creative Management. Blackwell Publishing, UK.
Bilton, Chris and Cummings, Stephen (2010) *Creative Strategy: Reconnecting Business and Innovation*. John Wiley & Sons, UK.
Hesmondhalgh, David (2007) *The Cultural industries*. Sage: London.
Townley, Barbara and Beech, Nick (2010) *Managing Creativity: Exploring the Paradox*. Cambridge University Press.

Assessment

By 3000 word essay (40%), Creative Project (40%) and in-class presentation (20%).

Digital Creativity and New Media Management

Aims

The aims of this module are to:
Provide a comprehensive understanding of digital convergence, remediation and innovation in terms of theory, method and practice.
Identify key factors for creativity and innovation that propel the structural transformation in the digital economy.
Understand the different analytical frameworks for understanding the transformation of old and new media in the digital economy.
Evaluate different business models and strategies of existing firms and new ventures.

Learning objectives

At the end of this module, students will be able to:
Develop and analyse research questions in the area of digital business strategy and policy issues, and Collect and analyse relevant secondary empirical data.
Evaluate business models and performance of new ventures as well as established firms in the media industry.
Develop critical capacity to carry out case studies and to assess business, policy and research implications.

Module Convenor

Klaus Nielsen

Content

This course will introduce key debates on digital convergence, remediation and innovation, while examining their implications for cultural life and business strategies. In this course, students will appreciate the synergy that exists between different academic disciplines as well as between different functions and hierarchies of the organisation. Furthermore, students will be encouraged extend their understanding of the interaction between technology, design and strategy to the contexts of communities, cities, nations and the cyberspace. Case studies will be used to facilitate discussions and students will develop their own ideas.

Assessment

Essay 2,500 words (50%); Exam – 2 hours (50%)

Recommended reading

Shirky, C. (2010), Cognitive Surplus: Creativity and Generosity in a Connected Age, Penguin Press HC.
Semple, E. (2012), Organizations Don't Tweet, People Do: A Manager's Guide to the Social Web, Wiley
Sloane, P, (2011) A Guide to Open Innovation and Crowdsourcing: Advice from Leading Experts in the Field. Kogan Page

Innovation: Management and Policy

Aim

The aim of this module is to provide students with a thorough understanding of the central issues of managing innovation in firms as well as of technology policy and its implications for firms, competitiveness and economic development in an international context.

Learning objectives

By the end of this module, the student will be able to understand key issues involved in managing innovation as well as the rationale and the implementation of technology and innovation policy.

Assessment

Seminar Presentation/Participation - (25%) and Exam (75%)

Module Convenor

Odile Janne

Content

Innovation and knowledge: The importance of innovation, definitions and models, main concepts and analytical tools, the interaction of technology, markets and organisations, the innovating firm in its environment, knowledge as a business resource.

Strategic management of innovation: Corporate competencies for innovation, innovation in technology-intensive industries, collaborative arrangements, patents strategy, multinational company networks, innovation in small firms.

Innovation policy: The economic foundations of technology and innovation policy, innovation policy in a globalising economy, intellectual property rights, business clusters.

Recommended reading

Tidd, Joe and John Bessant (2009), Managing Innovation: integrating technological, market and organizational change, 4th Edition, Chichester: John Wiley and Sons.
Fagerberg, J., Mowery D.C. and Nelson, R.R. (eds.) (2006), *The Oxford Handbook of Innovation*, Oxford: Oxford University Press.

Innovation Systems, Networks and Social Capital

Aims

The aim of this module is to provide students with a thorough understanding of how innovation is related to the management of social relations within the firm as well as inter-firm networks and also linked to educational systems, labour markets, financial markets and other aspects of the broader societal context.

Learning objectives

By the end of this module, the student should be able to apply theories of innovation systems, networks and social capital theories as analytical frameworks for conceptualising innovation processes, innovation management and innovation policy.

Module Convenor

Klaus Nielsen

Content

Innovation systems, theory and applications
New perceptions of innovation processes and interactive learning; systemic approach(es) to innovation; national, regional, local or globalised systems of innovation; application of the innovation system approach in empirical studies; innovation systems and ICT.
Social capital and networks, the firm as a nexus of social relations
The role of social relations in theories of the firm; social capital: theory and applications; corporate social capital: trust, norms and networks; social capital, human capital and other forms of capital; social capital in innovation processes; how to build social capital.
Inter-firm networks, clusters and innovation
Markets, hierarchies and networks; the network society: theory and evidence; networks and learning; strategic alliances and other inter-firm networks; innovation in industrial clusters.
Implications for innovation policy: Innovation policy and interactive learning in an innovation system; fostering of networks; business-university networks; social capital and innovation policy; lock-in and break-up.

Recommended reading

Smith, D. (2010): *Exploring Innovation*. London: McGrawHill.
Edquist, C. and MacKelvey, M. (eds.) (2000): *Systems of Innovation: Growth, Competitiveness and Employment*. Edward Elgar: Cheltenham.
Fagerberg, J. and D.C. Mowery and R.R. Nelson (eds.) (2005): *The Oxford Handbook of Innovation*. Oxford and New York: Oxford University Press.
Granovetter, Mark. (1973) "The strength of weak ties". *American Journal of Sociology*, 78(6), pp.1360-1380.
Field, J. (2003): *Social Capital*. London and New York: Routledge.

Assessment

A two-hour examination (75%) and a coursework essay of a maximum 2500 words (25%).

Intellectual Capital and Competitiveness

Aim

The aim of this course is to provide students with an understanding of such assets and the new managerial challenges they raise for firms. The opportunities for enhancing corporate competitiveness from such intellectual capital has increased in depth and scope, because of the integration of micro-electronics and information and communication technology (ICT) into business practices and organisations. Thus, the competitiveness of e-business is central to the course focus, and e-business here does not merely refer to Internet firms (as in the early days) but includes all services and manufacturing businesses adopting micro-electronics into their operations.

Learning objectives

The course will provide students with a good foundation for understanding the corporate assets of our time. It will introduce a set of analytical frameworks and tools that will help managers, business analysts, industrialists and policy-makers to build and capture the financial and non-financial returns from such intangible assets which in turn will enhance their corporate competitiveness.

Module Convenor

Birgitte Andersen

Content

Intellectual capital, and related intangible assets and intellectual property, are the CAPITAL OF OUR TIME. They are the sources of corporate competitiveness and value creation for services and manufacturing in terms of financial performance, market dominance, technological advantage, dynamic capabilities, and more. Such capital has been getting increased attention from business leaders, policy makers, consultants, business analysts, and academics over the past couple of decades. On this module, we will explore the following topics:
Getting a Grip on Intellectual Capital and Intangible Assets: What They Are and Why They Matter?;
Profiting from Technological Innovation: Patent Management;
Profiting from Innovation in Creative Expressions: Copyright Management;
Customer Based Intangibles and Market Based Assets: Managing Customer Loyalty and Branding;
The Managerial Challenges of Social Capital;
The Capital Embedded in Organizational Forms and Business Models;
Capitalising on Knowledge: Managing Knowledge Creation and Learning in Organisations; and
Measuring, Valuing and Reporting Intellectual Capital.

Assessment

Exam (75%), essay 2000 words (25%) and workshop attendance.

Recommended reading

Amit, R. and C. Zott (2001) ‘Value Creation in E-business’, *Strategic Management Journal* 22: 4930520
Brooking, Annie (1998) *Intellectual Capital.* International Thomas Business Press.

Principles of Organization and Management

Description

Organisations matter because just about everything that we do occurs within an organization. The broad aim of this module is to give all students, regardless of academic background, an introduction to the ideas, theories, models and values used to make sense of organizations and the way these theoretical insights are applied to understanding different organizational forms and their competitive significance in an era of global competition. The module reviews some of the major contributions to management thought, identifies trends in organizational analysis and management thinking and evaluates theories and research in terms of their usefulness in understanding and improving management practice.

Learning objectives

At the end of this module, you should be able to:
Discuss the major theoretical approaches to contemporary management and organizations;
Discuss the value of management research and its application to practice;
Apply organization theory and management knowledge to diverse organizational settings;
Demonstrate a critical perspective on organization/management theories and practice.

Module Convenor

Ioanna Boulouta

Recommended reading

Clegg, S, M Kornberger and T Pitsis (2011) *Managing and Organizations*. London: Sage.
Grey, C (2005) *A very short, fairly interesting and reasonably cheap book about studying organizations*. London: Sage
Pugh, D and D Hickson (1996) *Writers on organizations*. London: Penguin.

Assessment

coursework (100%)

Research Methods in Management (Postgraduate)

(MScIS&M students who have clashes with other modules may exceptionally take the instance of this module that is not consonant with their study mode i.e. part-time students may take the full-time offering and vice-versa)

Aims

To provide students with the necessary knowledge and understanding to critically appraise published research in the field of management;
and,
to give students the necessary skills to design their own research proposal and project.

Learning objectives

At the end of this module the student will be able to:
critically evaluate academic articles and assess the strengths and weaknesses in the data and methods applied;
derive research questions for their dissertation;
establish appropriate research designs and the relevant methods to answer their research questions;
analyse and present different types of data.

Module Convenor

Klaus Nielsen

Content

Qualitative research methods;
Quantitative research methods;
and
Philosophy of social science.

Supplementary workshops are offered with computer laboratory sessions using SPSS and introductory statistics. It is expected that students will apply their knowledge of research methods in their dissertations and coursework.

Assessment

This module is assessed by exam only (3 hours).

Background reading

If you have not studied research methods before we recommend that you read Collis and Hussey (2009) before the start of the course. This book provides an introduction to the material covered in the course. This is an *introductory* text and is pitched at a lower level than the material covered in the course.

Collis J and Hussey R (2009), Business Research: A Practical Guide for Undergraduate and Postgraduate Students, London: Macmillan.

Strategic management

Aims
To investigate the contribution of strategy and the role of strategic management in organisations.
To provide students with an advanced understanding of common strategic models and frameworks and an understanding of their benefits as well as limitations.
To introduce important theoretical concepts and an appreciation of seminal writers and relevant academic literatures.
To provide practical experience of strategic analysis and formulation both as individuals and within teams and develop the ability to analyse specific case studies and identify generic solutions.

Learning Objectives
By the end of this module, you will be able to:
Think deeply and rigorously and address the fundamental ideas in strategy research and challenges in strategic management (and develop 'the mind of a strategist')
Demonstrate a sound grasp of classical tools used in strategic analysis and to capably apply them to different cases and contexts
Outline the underlying theories on which these tools are based and the academic research from which they have been developed
and
Apply strategic management tools and techniques to real world business situations.

Module Convenor
Dominic Chai

Content
This module explores the rich and varied field of strategic management and how strategic analysis, strategy formulation and strategy implementation contribute to organisational performance and success. The module will review practically relevant ideas and frameworks that facilitate strategy design and formulation and help you appreciate and assess the work of a 'strategist'.
You will develop a sound grasp of classical tools used in strategic analysis and apply them to different contexts and cases; acquire an appreciation of the underlying theories on which these tools are based and the academic research from which they have been developed; and be required to fully engage with the subject in order to think deeply and rigorously and address the fundamental ideas in strategy research and the challenges of strategic management.

The module is structured in a way to make effective use of lectures and seminar group sessions. Lectures will outline and explore the relevant theories and concepts that underpin strategic management, while seminar groups will provide students the opportunity to develop their strategic thinking skills via the analysis and discussion of business cases and other relevant readings.

Assessment
Coursework 3,000 words (35%) Two Hour Written Exam (65%)

Recommended reading
Required Text: Hill, C.W.L. & Jones, G.R., (2012) "Theory of Strategic Management", 10th International Edition, South Western, Cengage Learning.

Other readings will also be made available in class.

Optional modules Level 7 DoG

Introduction to Geographic Information Systems

Aim
To introduce the fundamental principles, concepts and techniques of GIS through theoretical and practical exercises.

Learning objectives
In this module, you will

- gain practical experience of using a commercial GIS software package
- understand how you can tie in the theory surrounding digital representation of spatial phenomena with practical analysis of spatial data
- use the theory surrounding spatial analysis methodologies to carry out meaningful spatial analysis
- gain a good understanding of the theoretical concepts for the representation of spatial data
- conduct a number of different geo-processing operations that are used for solving real-world problems
- use the core functions of contemporary GIS packages for handle spatial data such as importing, integrating, manipulating, analysing and reporting
- work successfully with a variety of data in different standards and formats
- work independently on a project using GIS.

Module Convenor
Dr Shino Shiode

Content
We will cover a range of topics including

- what is GIS?
- map production
- georeferencing and coordinate systems
- spatial data models
- vector analysis
- raster analysis.

Assessment
Coursework (100%)

Recommended reading

- Longley, P. et al. (2015) Geographical Information Systems and Science, Wiley, Chichester. 4th Edition
- Heywood, I., Cornelius, S. and S. Carver (2012) An Introduction to Geographical Information Systems (Prentice-Hall). 4th Edition
- Chang, K.-T. (2015) Introduction to Geographic Information Systems, McGraw- Hill, Boston. 8th Edition

Geovisualization and Web GIS

Aim

To build on the cartographic skills to explore advanced cartographic representations using different media and formats. We will help you gain an understanding of WebGIS technologies that are at the core of web maps that are ubiquitous online. In addition, you will acquire web design skills fundamental to the creation of effective geovisualisations using web technologies (such as HTML, CSS, and JavaScript), web services, and exploratory spatial data analysis tools.

Learning Objectives

By the end of the course, students will be able to:

- Demonstrate practical experience of using commercial GIS software packages
- Show their knowledge of the technical architectures and standards for distributed GIS services
- Use mapping application programming interfaces, providers and standards related to the visualisation of geographic information
- Relate theory surrounding spatial analysis methodologies to applied spatial data visualisation tasks
- Conceptualise theoretical concepts for the visual analysis and communication of spatial data
- Import, integrate, manipulate, analyse and report spatial data using contemporary GIS packages and neogeography tools
- Work successfully with diverse data formats and standards
- Undertake individual project work
- Undertake active participation in discussions with tutors and peers
- Plan effectively and organise work schedules
- Complete work effectively to deadlines
- Communicate and collaborate successfully with the student body

Module Convenor

Dr Andrea Ballatore

Content

The syllabus includes:

- What is geovisualization
- HCI and geovisualisation principles of designs for effective geovisualization
- Geovisualization on the web: good and bad practices
- Deploying Geographic Information on the web
- WebGIS services: standards and practices

Assessment

Coursework (100%)

Recommended reading

- Pinde Fu (2016) *Getting to Know Web GIS*. Second Edition. Redlands, CA: ESRI Press.
- Tufte, E. (2001). *The Visual Display of Quantitative Information*, Graphics Press, Cheshire, Connecticut.
- Dykes, J., MacEachren, A. M., Kraak, M.-J. (2005) *Exploring Geovisualisation*, Elsevier, London.

MSc Dissertation

Aims

In the MSc dissertation, a student will be able to demonstrate his or her skills in organising and completing a task that goes beyond a typical coursework assignment.

That means either

(i) planning and undertaking an orderly piece of social science research in an Information Systems & Management context

or

(ii) planning and executing a major piece of information systems development work, and presenting also, existing approaches in the problem area (placing the student's own approach in the wider context).

In order that students will make early appropriate choices, the programme director will give a presentation on projects and dissertations in the first term. There may also be presentations by the Project Co-ordinator and the DoM Project Advisor which students are advised to attend.
In both Departments students are encouraged to come up with their own ideas for dissertations. Students on this programme may be supervised and assessed for the social science type of dissertation (i) in either the DCSIS or the DoM. Planning and executing a major piece of information systems development work (ii) will only be supervised and assessed in the DCSIS.
As previously stated a project or dissertation supervised in the DCSIS will have a 20% proposal component. In order to arrange supervision for the dissertation, a student should discuss possible dissertations with the Programme Director, Project Co-ordinator or with the lecturer who seems the most appropriate for the topic. Students are accepted for dissertations/projects when a member of DCSIS places the students name on their list of supervised students on the web-page set aside for this purpose. In this event the proposal must be submitted by the submission date which is normally during the Easter recess prior to the performance of the project.
Supervision in the DoM will not be for implementation type projects. Nor will the proposals be assessed or accrue marks. Students will submit a single page proposal for a hand-in date in January before the performance of the project. This proposal will outline their intentions and they will be assigned a supervisor by the DoM dissertations co-ordinator if the proposal is accepted.
Students intending to take a non-implementation dissertation, as (i) above, whether supervised in the the DCSIS or the DoM are required to take RMM.

Project Co-ordinator Oded Lachish,
DoM Project Advisor DoM Geoff Walters
Supervisor as appropriate

Assessment

In DCSIS

Written dissertation proposal (of about 2000-3000 words) and written dissertation report (of about 10,000 words for an Implementation Project up to 15,000 words for a Research Dissertation), weighting 20% and 80%, respectively.
NB the word counts here are guidelines, not targets. Students are advised to avoid overly terse writing as well as padding. Normally appendices in excess of these word counts may be submitted. These should be linked to the flow of the report and will be treated as part of the submission but may not be read in full. Appendices typically contain program code, research data.

In DoM

A research proposal of 2000 words and a final dissertation of 12000 words.

Online material
http://moodle.bbk.ac.uk/

Syllabus
The main part of the module will be undertaken by a student on his or her own (supported by the supervisor). For either Projects in the Department of Computer Science and Information Systems or Dissertations in either the Department of Computer Science and Information Systems or the Department of Management, there will presentations in which the students are acquainted with the expectations of a project or dissertation.

Reading
As recommended by the supervisor.

Regulations, Administration and Assessment

General rules governing degree programmes offered in the College are available from "Mybirkbeck" and can be found at

http://www.bbk.ac.uk/registry/policies/regulations

and in particular at

http://www.bbk.ac.uk/registry/policies/documents/CAS-regs-17-18.pdf .

Requirements for the Award of the MSc/PGDip

Taught modules comprise either 15 or 30 credits and are normally mainly assessed by a written exam and, in most cases, by additional coursework. The dissertation module comprises 60 credits and is assessed by the dissertation proposal document (20%) and the dissertation report (80%) in the DCSIS or the dissertation report (100%) in the DoM. For each module, a pass requires at least 50% of the available marks.

Level 6 Optional Modules, which were originally developed as BSc or BA 3rd/4th Year offerings are not included in the weighted average but must be passed at the Masters Level mark, i.e. 50%, if selected.

Most taught module have a written exam. In the DCSIS Examinations are in the Summer Term; in the DoM they are in the Term in which they are taught or in the first week of the following term. Up to 30 credits of taught modules which have been failed with a mark above 40% can be compensated, provided the total weighted average mark for the taught modules is above 50%.

To gain the MSc award students must pass taught modules, including all compulsory modules to a value of 120 credits and pass the dissertation or project valued at 60 credits. Whilst enrolled on the programme students may request the award of a Postgraduate Diploma (PGDip) if they have passed all the taught modules, including all compulsory modules, to a value of 120 credits. A Postgraduate Certificate (PGCert) may be requested by a student who has passed the compulsory taught modules and optional modules to a value of at least 60 credits.

The final grade is computed by taking the weighted average (according to number of credits) of the individual module assessment marks:

- Pass requires at least a 50% weighted average mark
- Merit requires at least a 60% weighted average mark
- Distinction requires at least a 70% weighted average mark and a pass in the project or dissertation at the distinction level.

Late submission

The following is copied from the College's Common Award Scheme Regulations which may be found at

http://www.bbk.ac.uk/registry/policies/documents/CAS-regs-17-18.pdf .

"20.1. Any piece of assessment that is submitted late and for which no application for consideration of mitigating circumstances has been accepted will be awarded a mark of no more than 40% (undergraduate modules) or no more than 50% (postgraduate modules). Where an application for consideration of mitigating circumstances is accepted, the relevant Sub-board of Examiners may, at its discretion, consider the work as if it had been submitted by the appropriate deadline."

Students should note that this includes all coursework including scheduled presentations and dissertation proposals. Where a coursework deadline cannot be met, an evidenced case claiming mitigating circumstances should be submitted via the Programme Administrator. This will be considered by the Advanced Postgraduate Degrees Mitigating Circumstances Committee.

Announcement of Results

The Examination Board meets in July mainly to consider the results of the written exams and coursework, and in November mainly to consider the results of the dissertations and to award degrees.

Shortly after the meeting of the Exam Board you will receive a letter from the Department about your results. Your results and grades will be confirmed officially sometime later by the College on your MyBirkbeck profile.

Please keep the Department notified of any change of residential and e-mail address; the letters sent to you after the Exam Board go to whatever address the Department holds for you. College letters go to whatever address you put on your examination entry forms but, as stated above, your results will also appear on-line in your MyBirkbeck profile.

Students who have not paid their fees are given *no information at all* about their examination results.

Exam Entry

You will be entered for Examinations for modules on which you are enrolled by the Birkbeck Student Information System.

Deferral

In **exceptional cases**, students may be permitted to defer the written exams and/or the dissertation to the following year. They must apply by filling in a deferral form (available from the Programme Administrator) setting out the reasons for wishing to defer. They have to do this before **1 May and by 1st September for the project**. A student who defers an element of assessment has to enter for that element the following year; normally no further deferrals are permitted.

Mitigating Circumstances

A Mitigating Circumstances claim should be submitted if valid detrimental circumstances result in:

- the late or non-submission of assessment;
- non-attendance of examination(s);
- poor performance in assessment.

If a student feels their circumstances warrant consideration by the Board of Examiners they should notify the Programme Director, in writing, in advance, at the earliest opportunity (within 7 days of the assessment deadline or examination) using a **Mitigating Circumstances Claim Form**, which can be downloaded from:

http://www.bbk.ac.uk/registry/policies/documents/MitCircs.pdf

and visit

http://www.bbk.ac.uk/reg/regs/mitcircspol

for further details.

On the form, students should state whether the circumstances relate to non-attendance at an examination or late submission of an assignment and should include supporting evidence (e.g. a medical certificate giving the nature and duration of any illness). They may inform their personal tutor, in confidence, of any problem they may not wish to disclose in writing. They should also complete late submission of coursework forms. If they discover subsequently that there are circumstances they could not report in advance, these should be notified to the Programme Director in writing as soon as possible. Students should be aware that discussing their claim with a member of staff does not constitute a submission of a claim of mitigating circumstances.

For a claim to be accepted a student must produce independent documentary evidence to show that the circumstances:

- have detrimentally affected their performance/submission/attendance in assessment or will do so;
- were unforeseen;
- were out of their control and could not have been prevented;
- relate directly to the timing of the assessment affected.

In **exceptional cases**, students may be permitted to defer the written exams and/or the project to the following year. They must apply by filling in a Mitigating Circumstances Claim Form pointed to above.

Students have to do this before **May 1st** for exams and by **September 1st** for the project.

A student who defers an element of assessment normally has to enter for that element the following year; usually no further deferrals are permitted. Simply not turning up for an exam or failing to submit a coursework or project, without permission to defer, will be considered to be the same as failing it, in the sense that it will count as one of the two attempts that you are permitted to make at passing that element.

Further, students seeking deferral or extensions through mitigating circumstances should consult

http://www.bbk.ac.uk/mybirkbeck/services/rules .

Re-sitting Elements of the Assessment

One resit (but only one) is allowed for each element. You may resit a written exam or the dissertation if your marks for that element are below 50%.

If your marks are below 40\%, then you have to retake the whole module (i.e., attend lectures and be reassessed in each element of the module, including coursework and exam).

From 2015/16 students who fail an assessment and are awarded a reassessment opportunity have their reassessment subject to a cap of 50\% for the reassessed element. The cap does not apply to a retake of a whole module and to students with accepted mitigating circumstances. Students awarded a reassessment opportunity in 2014/15 or before will not be subject to a cap for a reassessment taken in 2015/16.

There are no special resit exams; students resit alongside the other candidates. They normally do so a year after their first attempt. Where the syllabus has changed, we set a paper that is suitable for resit candidates, providing alternative questions where necessary. Note, however, that we do this only for candidates from the previous year, not from further in the past.

Enrolment as a Revision Student or Dissertation-Only Student

Repeat students, i.e., students who have to retake some modules (and are not taking any new modules) will be charged pro-rata based on the number of credits they retake.

Assessment only students, i.e. those students who

- are being reassessed for coursework and/or examinations only
- have deferred their examinations and are not taking any new modules
- have deferred the project and do not require supervision (resubmitting only)

pay a reduced fee that will allow them access to College facilities (Library and workstation rooms).

While deferred students are classed as assessment only they are allowed to attend lectures for revision purposes. They should formally seek the permission of module tutors to ensure classes are not oversubscribed.

Dissertation only students, i.e. students who retake the project with supervision, pay one third of full fees.

Note that

- a student who has to resubmit the dissertation and be reassessed for examination or coursework will be progressed as dissertation only

- a student who has to resubmit the dissertation and also repeat modules will be progressed as repeat and fees are based pro-rata on the number of credits.

Examinations

Exams are scheduled by the College examinations office on specified dates: these are posted well in advance on the College and programme web sites. Students are required to sit their exams at the scheduled time and place at Birkbeck.

Note that examinations are held during the day, so part-time students will have to make arrangements with their employers to take leave of absence.

Assessment offences and Plagiarism

See

http://www.bbk.ac.uk/student-services/exams/assessment-offences

and

http://www.bbk.ac.uk/mybirkbeck/services/rules/Assessment Offences.pdf

for the College Policy on Assessment Offences.

One particular assessment offence **Plagiarism** is defined as "copying a whole or substantial parts of a paper from a source text (e.g. a web site, journal article, book or encyclopaedia), without proper acknowledgement; paraphrasing of another's piece of work closely, with minor changes but with the essential meaning, form and/or progression of ideas maintained; piecing together sections of the work of others into a new whole; procuring a paper from a company or essay bank (including Internet sites); submitting another student's work, with or without that student's knowledge; submitting a paper written by someone else (e.g. a peer or relative), and passing it off as one's own; representing a piece of joint or group work as one's own".

There are many ways of plagiarising the work of others. Some examples are given below:

- Copying chunks of text without using quotation marks and without appropriate acknowledgement; for example, cutting-and-pasting text from website encyclopaedias or online research papers, or copying papers written by students who did a similar dissertation.
- Copying text and making very minor changes, and without appropriate acknowledgement. This is an example of unacceptable paraphrasing.
- Copying a picture or photo from the Internet, without appropriate acknowledgement. If you use images protected by copyright you must also obtain permission from the copyright owner. See the Library for guidance.
- Using another person's numerical spreadsheet, software or results, without appropriate acknowledgement.
- Duplicating your own work, for example by submitting almost exactly the same work for two different assignments, e.g. a piece of coursework and the MSc dissertation.

- Using code developed by another person without acknowledging the original author as the person who developed it.

The College considers plagiarism a serious offence, and as such it warrants disciplinary action. This is particularly important in assessed pieces of work where plagiarism goes so far as to dishonestly claim credit for ideas that have been taken from someone else. According to paragraph 3.2 of the College's “Procedures for Dealing with Plagiarism by Students on Taught Programmes of Study'”, “a student who knowingly assists another student to plagiarise (for example by willingly giving them their own work to copy from) is committing an examination offence.” The College's procedure also identifies various types of plagiarism and is available online at the Registry's web page:

http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/offences/plagiarism .

According to paragraph 3.2 of the College's ``Procedures for Dealing with Plagiarism by Students on Taught Programmes of Study'':

The College provides learning support for exams and assessments, please see

http://www.bbk.ac.uk/student-services/learning-development

and guidelines on plagiarism

http://www.bbk.ac.uk/student-services/exams/plagiarism-guidelines .

Birkbeck College Resources

Birkbeck Library

Although lectures and computing sessions are essential elements of your course, success in learning depends largely on the reading and research that you undertake. Most items on module reading lists can be found in the Birkbeck and Institute of Education Libraries and it is important that you familiarise yourself with these Libraries as soon as you can. At postgraduate level, you will also be expected to use other libraries during your studies.

The entrance to Birkbeck Library is on the ground floor of the main building in Malet Street. Your College ID card gives you automatic access to the Library. There is no need to register. The opening times of the Library are designed to meet the needs of part-time students in full-time work – see http://www.bbk.ac.uk/lib/ for details of opening hours.

You can borrow up to 15 items and they can be renewed as long as no-one else requests them. Most books can be borrowed for 3 weeks. Some books, videos and DVDs can be borrowed for 1 week. A few items can only be issued for 1 day. There is also a Reading Room Collection with reference access to key course readings.

Please be a responsible Library user. The smooth running of the Library depends on your co-operation. Please renew or return items promptly, especially if someone else has requested them. If you fail to return items on time you will incur fines and your borrowing rights will be suspended. Students who have overdue items at the end of the academic year will have examination results withheld until the items are returned.

You can access a whole host of electronic journals and databases from any PC in College. The majority of resources can also be accessed from outside College with your IT Services (ITS) username and password.

The Library website is at http://www.bbk.ac.uk/lib_. As well as giving comprehensive information about the Library's services and collections, you can also:

- Search the Library catalogue, renew your books and place reservations on items that are out on loan.
- Read articles in over 25,000 electronic journal titles and newspapers.
- Search databases to help you find out what has been written about the subject you are researching, including the *ACM* and *IEEE Digital Libraries*, *Business Source Premier*, *Nexis UK* and the *Science* and *Social Sciences Citation Index.*
- Access past exam papers.
- Work through *LIFE* – an online tutorial to help you make the most of the Library.

Birkbeck students can also use a range of other libraries. Students have reference access to most University of London college libraries. In addition, postgraduate students can join the *SCONUL Access Scheme* which allows access to most other higher education libraries with limited borrowing rights. See the Library web site for more information.

If a book you need is not available in the Library or you require any assistance using the resources or finding information, please ask at the Help Desk. Telephone: 020 7631 6063. Alternatively, contact your Subject Librarian, **Aidan Smith**, directly. Telephone: 020 7631 6062. Email am.smith@bbk.ac.uk

Birkbeck eLibrary

As well as its physical holdings, the Library has a comprehensive range of e-resources including bibliographic databases (which tell you what has been written on a topic), and electronic journals.

Most of the electronic resources can be accessed from outside the College using your IT Services username and password. If you did not receive this upon enrolment, please ask for them at IT Services reception (Malet Street).

The LAMP Service (**L**ibr**A**ry **M**aterials by **P**ost) is a subscription based service which enables you to have books and photocopies of articles posted to your home address. You may find it particularly useful if you are not able to visit the library frequently. Birkbeck students with disabilities may be able to join the service for free on the recommendation of the College Disability Officer, Mark Pimm. If you think you may be eligible for free membership, please first contact Mark Pimm in the Disability Office.

The College Library also runs an interlibrary loan service to enable you to obtain copies of books and articles not held in its own collections. As it can take a couple of weeks to obtain copies of requested materials, you are advised to plan ahead in your general reading and essay preparation so as to make use of this facility. Please note: a charge of £1 will be made for each interlibrary loan request received and there is a limit of 10 requests in progress at any one time.

An introduction to the Library and bibliographical skills is timetabled at the start of your course at which you will meet the Subject Librarian who looks after the collection. They will introduce you to the Library and its electronic resources. In addition, the Library has an online tutorial called LIFE (Library Induction for Everyone) which is always available: http://www.bbk.ac.uk/lib/life/ which has a module in it on 'Researching a topic'.

Wellbeing Service

http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service

is made up of the Counselling Service, the Disability and Dyslexia Service, and the Mental HealthService. They provide specialist support to students. You can contact the Wellbeing Service by emailing wellbeingservices@bbk.ac.uk or by calling on 020 7631 6316, where you will be able to speak to one of the Wellbeing Service Administrators. The telephone service opening hours are: Monday to Thursday : 11am-1pm and 2pm-4pm • Friday: 11am-2pm.

The Counselling Service

www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/counselling-service

provides assistance to students who are experiencing emotional difficulties which may be impacting upon their studies or overall experience at Birkbeck.

Mental Health Service

Many students experience mental health difficulties at some point in their time at university. Whether you have a formally diagnosed psychiatric condition or other form of mental health difficulty such as anxiety or depression, we encourage you to seek support in your studies. Birkbeck's Mental Health Service

http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/mental-health-service

At Birkbeck we welcome students with disabilities. We aim to provide all of our students with a study environment that enables them to participate fully in our courses. The Disability and Dyslexia Service

www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/disability

can provide advice and support to students with conditions that impact their ability to study, such as:

- specific learning difficulties (dyslexia, dyspraxia, dyscalculia, AD(H)D);
- sensory impairments (blind/partially sighted, deaf/hearing impaired);
- mobility conditions (including RSI, arthritis, neck back and knee conditions etc.);
- medical conditions (e.g. HIV, CFS, diabetes, cancer, chest and respiratory conditions etc.);
- autism spectrum conditions (autism or Aspergers syndrome).

They can provide support during your studies including:

- Your Study Support Plan;
- The Disabled Students' Allowance;
- Access to Learning Fund;
- Charities and trusts;
- Dyslexia screening test;
- Government benefits;
- Personal emergency evacuation plans;
- Pager alert system;
- Rest Room;
- Toilet facilities;
- Car parking;
- Disability and Dyslexia Support in the Library and IT Services.

Career Development

Most students are interested in developing their careers, either within their current field of work or in a completely new direction. The Careers Group, University of London

http://www.thecareersgroup.co.uk/

offers great expertise and experience in working with students and graduates of all ages and at all stages of career development. The Careers and Employability Service

http://www.bbk.ac.uk/careers/careers-service

is our in-house service for enhancing career development and employability throughout your time at Birkbeck, from enrolment through to graduation. There is also Birkbeck Talent, a professional recruitment service aimed exclusively at assisting Birkbeck students to find work whilst studying and after graduation. They work with London's top employers to offer innovative internships, prestigious job vacancies and exciting graduate opportunities. To find out more, visit

http://www.bbk.ac.uk/talent .

Other Resources and Organisations

Birkbeck Student Union

You are automatically a member of the Birkbeck Students' Union, the University of London Union and NUS upon taking up the offer of a place to study at Birkbeck. NUS cards are available online (NUS Extra) or from the Union Office, Malet Street. Application can be made to become a member of the International Students' Association by completing a form that can also be obtained from their shop.

Location and Telephone: Offices on the 4th Floor of the extension building in Malet Street. General Union Office is in Room 456, Tel: 020 7631 6335. Enquiries: administrator@bcsu.bbk.ac.uk . Visit the website at

http://www.birkbeckunion.org .

IT Services (ITS)

Access to College IT facilities and services is controlled by using a username and password. IT Services (ITS) usernames and passwords are allocated to registered students of Birkbeck College.

Accepted applicants for undergraduate and postgraduate degree courses will receive details from ITS of the username and password for the purpose of on-line enrolment. Following completion of enrolment, registered students will be able to access the full range of IT services. Details of the allocated email address and an *Overview to ITS for Students* are included in the communication students will receive from ITS. Please note the account and email address are not operational until the enrolment has been completed, until then the username and password can only be used for on-line enrolment.

Returning students should continue to use the same account they were previously allocated. If you forget your password, visit www.bbk.ac.uk/its/mycomputeraccount - if you have registered an external email address with the Registry then it may be possible to send you a new password, otherwise you will have to contact the ITS Helpdesk.

You are expected to be familiar with the College Computing Regulations which are available at: http://www.bbk.ac.uk/hr/policies_services/policies_az/computing_regulations

ITS resources include:

- PC workstation rooms
- Wireless network
- Wide range of general office and specialist computer applications
- Web-based electronic mail
- Blackboard Virtual Learning Environment
- Assistive technology facilities
- Training workshops and self-training materials
- Remote access to College electronic resources and services from home or work

You can find out more about these services and others by visiting our website at: www.bbk.ac.uk/its

Your Birkbeck email address will be used for official Birkbeck correspondence so you should check it at least once a week. Alternatively you can forward all email sent to this address to another email address that you do regularly check, instructions on how to do this are on the ITS website.

There is a text message news flash service which enables students to receive free urgent messages from the College via their mobile phones. You are encouraged to subscribe. Full details are available at: www.bbk.ac.uk/its/services/sms

Students are allocated personal storage space on a networked file server. Files will remain on the server for one year after you leave.

Your ITS username, password and email address will normally remain valid as long as you remain a paid up undergraduate or postgraduate student of Birkbeck College. However, if we have reason to think that the security of an account has been compromised your account could be suspended without warning and you will need to visit the ITS Helpdesk to have it reinstated.

ITS Helpdesk Opening Hours

Ground Floor, Malet Street Main Building

Term time:	Monday to Friday	9:00am to 8:00pm
Vacations:	Monday to Friday	9:00am to 6:00pm

Tel: 020 7631 6543 Email: **its-helpdesk@bbk.ac.uk**