Birkbeck
University of London
Department of Computer Science and
Information Systems

MSc
Advanced Computing Technologies

Programme Handbook
2015/16

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# Contents

Overview of the Programme ................................................................. 3  
Dates and Timetables ........................................................................ 5  
  Lecture timetables ........................................................................ 6  
Student Support .................................................................................. 7  
Availability of Optional Modules ...................................................... 8  
Module Descriptions .......................................................................... 8  
  Advances in Data Management (ADM) ........................................... 9  
  Big Data Analytics Using R (BDA) ................................................ 10  
  Cloud Computing (CC) ............................................................... 11  
  Component-Based Software Development (CBSD) ....................... 12  
  Data Warehousing and Data Mining (DWDM) ............................... 13  
  Information and Network Security (INSEC) ................................ 14  
  Information Retrieval and Organisation (IR) ............................... 15  
  Intelligent Technologies (IT) ....................................................... 16  
  Internet and Web Technologies (IWT) .......................................... 17  
  Mobile and Ubiquitous Computing (MUC) .................................. 18  
  Programming Paradigms and Languages (PPL) .......................... 19  
  Search Engines and Web Navigation (SEWN) ............................. 20  
  Semantic Web (SW) ................................................................... 21  
  Software Design and Programming (SDP) ................................. 22  
Module Evaluation ............................................................................. 23  
Project Guidelines ........................................................................... 25  
  Aims of the Project ................................................................. 25  
  Choosing a Project ................................................................. 25  
  The Project Proposal .............................................................. 26  
  Important dates .................................................................... 26  
  Assessment Criteria ............................................................... 27  
  Staff Research Interests ........................................................... 28  
Assessment and Examinations .......................................................... 30  
Late Submission of Coursework and Project ..................................... 31  
Mitigating Circumstances ................................................................... 32  
Plagiarism ......................................................................................... 36  
College Policy on Assessment Offences .......................................... 39  
Award of the MSc ........................................................................... 40  
Reassessment and Retaking Elements of the Assessment ................ 41  
Progression to the 2nd year of part-time study ............................... 42  
Enrolment as a Repeating, Assessment Only or Dissertation Only Student ................................................................. 42  
Deferral ......................................................................................... 43  
Break in Studies and Withdrawal from a Programme of Study .............. 44  
Student Support Services ............................................................... 45  
IT Services (ITS) ........................................................................... 47  
Library Services ............................................................................. 48  
Other Resources and Organisations ................................................ 50
Overview of the Programme

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Programme Administrator: Liam Simmonds (pgadmin@dcs.bbk.ac.uk)
Admissions Tutor: Carsten Fuhs (carsten@dcs.bbk.ac.uk)
Projects Co-ordinator: Oded Lachish (oded@dcs.bbk.ac.uk)

The MSc in Advanced Computing Technologies is a specialist programme of study of advanced computing technologies, data science and data analytics focusing on areas of expertise and research specialisation within the Department of Computer Science and Information Systems:

- Data Analytics
- Information and Web Technologies
- Intelligent Technologies

As an alternative to the award of MSc Advanced Computing Technologies, the modules and project may be chosen with a main focus in one of these areas to be awarded an MSc Data Analytics, MSc Information and Web Technologies or MSc Intelligent Technologies.

Students who complete this MSc will have obtained knowledge and understanding of technologies in areas of growing importance in the IT industry - including the management and analysis of 'big data', software development of information systems in web-based, cloud and mobile architectures, and computational methods for intelligent information management and analysis - and their relationship to current and emerging IT industry practice. They will be able to use this knowledge and technical skills gained in

- analysis of problems arising in the use of advanced computing technologies
- evaluation of technology options
- deployment of appropriate solutions
- research into, and development of, new technologies.

Full-time students follow 8 taught modules and undertake a 3-4 month project. Part-time students are normally expected to take 4 taught modules in each of the two years and the project component in the second year.

Students select their modules from the following:

- Advances in Data Management (ADM)
- Big Data Analytics Using R (BDA)
- Cloud Computing (CC)
- Component-Based Software Development (CBSD)
- Data Warehousing and Data Mining (DWDM)
- Information and Network Security (INSEC)
- Information Retrieval and Organisation (IR)
- Intelligent Technologies (IT)
- Internet and Web Technologies (IWT)
- Mobile and Ubiquitous Computing (MUC)
- Programming Paradigms and Languages (PPL)
- Search Engines and Web Navigation (SEWN)
- Semantic Web (SW)
- Software Design and Programming (SDP)

If you are not a proficient Java programmer or not familiar enough with Object-Oriented design principles, you are strongly advised to follow the course “An Introduction to Object-Oriented Program-
ming”. This is delivered online with video lectures and can be accessed through the following link: http://www.dcs.bbk.ac.uk/~keith/oopintro

The information in this Handbook is specific to the MSc in Advanced Computing Technologies and is correct at 17 August 2015.

Information about later changes and more detailed information about aspects of the programme are available on the intranet at http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_ACT_Intranet. The Virtual Learning Environment Moodle (moodle.bbk.ac.uk) is used to provide detailed information and post announcements about each module.

*It is your responsibility to familiarise yourself with the contents of this Handbook as well as the web site and Moodle, and to consult the web site and Moodle on a regular basis since additional information will be posted there during the year. You should also read your Departmental and College email on a daily basis.*
Dates and Timetables

The term dates for the academic year 2015/16 are as follows:

- **Autumn**: 28 September 2015 – 11 December 2015
- **Spring**: 4 January 2016 – 18 March 2016
- **Summer**: 18 April 2016 – 1 July 2016

Introductory talks for students will be held at the following times:

- **New students**: 6pm, Tuesday 22 September
- **Returning students**: 6pm, Thursday 24 September

First lectures for modules are: 6pm, Monday 28 September

The taught programme covers two terms of approximately eleven weeks each. The summer term is devoted to exams and the project (for full-time students and part-time year 2 students). Note that the project is handed in only in September.

You will be notified nearer the time of the room in which the introductory talks will take place. For new students, these will include a short hands-on introduction to the Department’s computer system. If you are not able to attend the introductory talk, please arrive early for the first lecture and speak to the Programme Administrator in Room 263 on the second floor of the extension to the Birkbeck main building.

**College holiday closing**

- **Christmas and New Year Closure**: closing on Wednesday 23 December 2015 at 6pm; re-opening on Monday 4 January 2016 at 9am.
- **Easter closure**: closing on Wednesday 23 March 2016 at 6pm; re-opening on Wednesday 30 March 2016 at 9am.
Lecture timetables

Module abbreviations used in the following timetables are given in the section Overview of the Programme above.

Room locations are shown on the map at:  
http://www.bbk.ac.uk/mybirkbeck/guides/help/class-information/teaching-map.pdf

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<td>Module</td>
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<td>INSEC</td>
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<td>Tuesday</td>
<td>BDA</td>
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<td>Wednesday</td>
<td>PPL</td>
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<td>Thursday</td>
<td>Project*</td>
<td>11am-12.30pm</td>
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<td></td>
<td>IT/SEWN</td>
<td>6-9pm</td>
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<tr>
<td>Friday</td>
<td>CC/Project*</td>
<td>6-9pm</td>
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Note that some modules are offered in the evening on alternate years only. Part-time students in their first year of study wishing to take SW, SEWN (autumn term) or ADM (spring term) must do so in 2015/16. None of these 3 modules will be offered in the evening in the following year (see below an indicative timetable for 2016/17). Part-time students must select 4 modules each year in such a way as to ensure that they can complete their chosen 8 modules in 2 years.

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<th>Day</th>
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<tr>
<td>Monday</td>
<td>SW</td>
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<td>INSEC/SW</td>
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<tr>
<td>Friday</td>
<td>CC/Project*</td>
<td>6-9pm</td>
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</tbody>
</table>

* Lectures are held in the week 3 of the autumn term giving guidance on projects. Lectures are repeated to allow attendance either Thursday morning or Friday evening.
Student Support

Every student is allocated a **personal tutor** in the first weeks of the programme. The personal tutor is someone 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, Oded Lachish [mailto:oded@dcs.bbk.ac.uk](mailto:oded@dcs.bbk.ac.uk) 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. Details of the College’s “Student Dispute Resolution Procedure” is linked from the My Birkbeck webpages at [http://www.bbk.ac.uk/mybirkbeck/services/rules](http://www.bbk.ac.uk/mybirkbeck/services/rules).

Students on each programme elect **Class Representatives** from amongst themselves early in the academic year. Class Reps provide a point of contact with the Department for student feedback on modules and other aspects of the programme. They can make the Department aware of students’ views both in respect of any problems students are experiencing as well as positive points they want to make.

While Class Reps can raise matters with the Programme Director at any time, they also attend **Staff-Student Exchange meetings** in each of the autumn and spring terms at which students’ views on any aspect of the Programme can be raised with the Programme Director. These meetings are minuted and the minutes made available on the Department intranet. Students should make sure that their Class Reps are aware of any matters which they wish to be raised at these meetings.

The **Birkbeck Students’ Union** provides help and advice to students – information about their services can be found linked from the Students’ Union webpage: [http://www.bbk.ac.uk/su/](http://www.bbk.ac.uk/su/)

At Birkbeck, we believe that lack of finances should not be a barrier to you studying so we provide financial support packages and bursaries. Information on financial support is available online at: [http://www.bbk.ac.uk/mybirkbeck/finance/studentfinance](http://www.bbk.ac.uk/mybirkbeck/finance/studentfinance)
Availability of Optional Modules

Optional module availability is subject to timetabling constraints and student demand. In the event that an optional module is over-subscribed, available places will be allocated on a first-come, first-served basis determined by the date you return your module choice form to the Programme Administrator.

Module Descriptions

Lectures aim to introduce the key ideas of each module. The specific objectives of each module and the principal readings are circulated at the start of the term. The reading lists for individual modules given below are only indicative. Lecturers will specify, usually at the first lecture, whether or not books need to be purchased for particular modules. Independent study is a key learning objective of the programme.

Most modules have dedicated web pages that provide links to relevant online literature. Depending on the nature of the material, some lecturers use ‘lecture outlines’ to support their teaching and may even distribute these outlines via their web pages. However, there is no expectation that written notes will be provided for the modules.

Students can also contact lecturers outside the classroom to discuss the material. They can meet the lecturers during scheduled ‘office hours’ or can contact them via email either to discuss a problem or to make an appointment. Lecturers’ contact details are given on the Department web site and in the Department’s Student Handbook.

Students are expected to attend all lectures. Any student who decides to withdraw from the programme should inform the Programme Director, in writing or by email. Students who simply stop turning up for lectures without formally withdrawing from the programme will still be held liable for fees.

A number of modules require students to submit coursework as part of the assessment. Such coursework must always be the students’ own work, except where explicitly noted. Students are required to confirm in writing or via email that each item of coursework submitted is indeed their own work. The Department and College have strict guidelines and penalties associated with plagiarism, and routinely submit students’ work to plagiarism detection services. More details are given in the section Plagiarism of this Handbook.
Advances in Data Management (ADM)

Aims of the Module

To study advanced aspects of database management and recent advances in data management technologies in three major directions: performance, distribution of data, and heterogeneity of data.

The module examines the technologies underlying modern database management systems. It studies advanced aspects of query processing, transaction management, distributed data management, and recent developments in web data, “big data” and alternative database architectures.

Staff: Alex Poulovassilis

Assessment: By 2-hour written examination and practical coursework. The final module mark will be the exam mark attained. A minimum mark of 40% on the practical coursework component will be necessary in order to pass the module overall.

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

Pre-requisites and co-requisites to the module

Prerequisites: A first module in Database Systems (e.g. as taught in a typical UK undergraduate degree in computer science)

Syllabus

- Review of the fundamental principles of modern database management systems, relational databases and SQL.
- Query processing and query optimisation.
- Transaction management: ACID properties, concurrency control, recovery.
- Beyond records and objects: stored procedures and functions, triggers, semantic technologies.
- Distributed databases: data fragmentation and replication, distributed query processing, distributed transaction management.
- Heterogeneous data integration.
- XML data management.
- Linked Open Data.
- Parallel databases.
- Big data and NoSQL/NewSQL stores.

Background Reading

4. A. Elmagarmid, M. Rusinkiewicz, A. Sheth (eds), Management of Heterogeneous and Autonomous Database Systems, Morgan Kaufmann, 1999
5. Research papers will be distributed to students; students will also be directed to Web resources on the subject.
**Big Data Analytics Using R (BDA)**

**Aims of the Module**

To study advanced aspects of big data analytics, applying appropriate machine learning techniques to analyse big data sets, assessing the statistical significance of data mining results, and using the open-source tool R to perform basic data mining tasks on big data.

This module covers the principle concepts and techniques of data analytics and how to apply them to large-scale data sets. Students develop the core skills and expertise needed by data scientists, including the use of techniques such as linear regression, classification and clustering. The module will show you how to use the popular and powerful data analysis language and environment R to solve practical problems based on use cases extracted from real domains.

**Staff:** Tingting Han

**Assessment:** By 3-hour written examination and practical coursework, weighting 80% and 20% respectively.

**Pre-requisites and co-requisites to the module**

Prerequisites: Experience with a modern programming language,

**Module URL:** [http://moodle.bbk.ac.uk/](http://moodle.bbk.ac.uk/)

**Syllabus**

- Introduction to big data analytics: big data overview, data pre-processing, concepts of supervised and unsupervised learning.
- Basic statistics: mean, median, standard deviation, variance, correlation, covariance.
- Linear regression: simple linear regression, introduction to multiple linear regression.
- Classification: logistic regression, decision trees, SVM.
- Ensemble methods: bagging, random forests, boosting.
- Evaluation and validation: cross-validation, assessing the statistical significance of data mining results.
- Selection of advanced topics such as: scalable machine learning, big data related techniques, mining stream data, social networks.
- Tools: R.

**Recommended Reading**

**Cloud Computing (CC)**

*Aims of the Module*

This module aims to introduce back-end cloud computing techniques for processing “big data” (terabytes/petabytes) and developing scalable systems (with up to millions of 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.

Students in this module will learn to understand the emerging area of cloud computing and how it relates to traditional models of computing, and gain competence in MapReduce as a programming model for distributed processing of big data.

*Staff:* Dell Zhang

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

*Module URL:* [http://www.dcs.bbk.ac.uk/~dell/teaching/cc/](http://www.dcs.bbk.ac.uk/~dell/teaching/cc/)

*Pre-requisites and co-requisites to the module*

Good knowledge of Java programming would be necessary. Students who did not have much experience in this area before joining their respective MSc programmes should have already taken the ISD (BUC1021S7) module.

*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

*Reading*

3. Extensive use is made of other relevant book chapters and research papers that are distributed or provided online.
Component-Based Software Development (CBSD)

Aims of the Module

This module introduces the theory and practice associated with implementing large-scale distributed information systems in heterogeneous environments. The student will develop the technical knowledge necessary to analyse the scalability and interoperability problems associated with large-scale heterogeneous systems and will experience the design and implementation of enterprise-level computer applications. Industry standard frameworks such as Java Enterprise Edition (JEE), Spring, Enterprise Service Bus (ESB), etc. will be explored utilising practical workshops. The development of web services will also be discussed through the use of standards such as XML, SOAP, WSDL and UDDI. How web services can be used to implement a Service Oriented Architecture (SOA) will be described. Note: this course requires a great deal of time outside class. Students should take this into account when considering taking other modules or if they encounter a lot of travel for work.

Staff: Keith Mannock

Assessment: By 2-hour written examination and practical coursework. The written examination has a weighting of 80% and the coursework has a weighting of 20% of the final mark.

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

Pre-requisites and co-requisites to the module

Introduction to Software Development (BUCI021S7) with a distinction level grade, or Programming in Java (BUCI033S7), or a similar course or relevant experience (as approved by the module leader).

Syllabus

- Introduction to Component Based Software
- Java approaches to n-tier architectures (JEE, Spring, etc.)
- Enterprise Computing in the real world (Case Study)
- Message-Oriented Middleware (RabbitMQ, etc.)
- Virtualization and Cloud Computing
- Design Patterns and Enterprise Architectures
- The .NET model for distributed computing
- Persistence layers
- User Interfaces
- Web Services
- RESTful services

Indicative Reading

Data Warehousing and Data Mining (DWDM)

Aims of the Module

To study advanced aspects of data warehousing and data mining, encompassing the principles, research results and commercial application of the technologies.

This module covers the organisation, analysis and mining of large data sets to support business intelligence applications. Students study the principles and commercial application of the technologies, as well as research results and emerging architectures underpinning the analysis and mining of "big data".

Staff: Nigel Martin

Assessment: By 2-hour written examination and practical coursework. The final module mark will be the exam mark attained. A minimum mark of 40% on the practical coursework component will be necessary in order to pass the module overall.

Module URL: http://www.dcs.bbk.ac.uk/~nigel/teaching/dwdm/

Pre-requisites and co-requisites to the module

Prerequisites: A first module in Database Systems (e.g. as taught in a typical UK undergraduate degree in computer science)

Syllabus

- Data warehousing requirements.
- Data warehouse conceptual design.
- Data warehouse architectures.
- Data warehouse logical design: star schemas, fact tables, dimensions, snowflake schemas, dimension hierarchies.
- OLAP architectures, OLAP operations. SQL extensions for OLAP.
- Data warehouse physical design: partitioning, parallelism, compression, indexes, materialized views, column stores.
- Data warehouse construction: data extraction, transformation, loading and refreshing. Warehouse metadata.
- Data warehouse architecture trends. MapReduce and warehouse architectures: Pig, Hive.
- Data mining concepts, tasks and algorithms.
- Data mining technologies and implementations. Techniques for mining large data sets, stream mining, architecture trends, standards, products.
- Research trends in data warehousing and data mining.

Reading

4. J. Han, M. Kamber, Data Mining Concepts and Techniques (3rd ed.), Morgan Kaufmann, 2011.
5. Research papers will be distributed to students; students will also be directed to Web resources on the subject.
Information and Network Security (INSEC)

Aims of the Module

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.

Staff: David Weston

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

Module URL: Online material will be provided on the following page under the heading Teaching: http://www.dcs.bbk.ac.uk/~dweston

Pre-requisites and co-requisites to the module

None

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

Reading

**Information Retrieval and Organisation (IR)**

**Aims of the Module**

Due to the explosive growth of digital information in recent years, modern Information Retrieval (IR) systems such as search engines have become more and more important in almost everyone's work and life (e.g. see the phenomenal rise of Google). IR research and development are one of the hottest research areas in academia as well as industry.

The aim of this module is to introduce modern IR concepts and techniques, from basic text indexing to advanced text mining. Both theoretical and practical aspects of IR systems will be presented and the most recent issues in the field of IR will be discussed. This will give students an insight into how modern search engines work and are developed.

**Staff:** Dell Zhang and Mark Levene

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

**Module URL:** [http://www.dcs.bbk.ac.uk/~dell/teaching/ir/](http://www.dcs.bbk.ac.uk/~dell/teaching/ir/)

**Pre-requisites and co-requisites to the module**

None.

**Syllabus**

- Boolean Retrieval
- The Term Vocabulary & Postings Lists
- Dictionaries & Tolerant Retrieval
- Index Construction and Compression
- Scoring, Term Weighting & the Vector Space Model
- Computing Scores in A Complete Search System
- Evaluation in Information Retrieval, Relevance Feedback & Query Expansion
- Probabilistic Information Retrieval
- Language Models for Information Retrieval
- Text Classification, Naive Bayes and Vector Space Classification
- Flat and Hierarchical Clustering
- Advanced Topics in IR

**Reading**

Intelligent Technologies (IT)

Aims of the Module

The module covers computational algorithms for intelligent information management, decision making and complex problem solving. It provides an introduction to technologies such as knowledge-based systems, artificial neural networks, fuzzy logic, evolutionary computation, hybrid systems showing how such technologies work to support the development of modern intelligent applications.

Staff: George Magoulas

Assessment: By 2-hour written examination.

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

Pre-requisites and co-requisites to the module

No formal pre-requisite or co-requisite module but knowledge of mathematical concepts such as those presented in the website (http://www.gcseguide.co.uk/mathsgcseguide.htm) is essential.

Syllabus

- Knowledge-based systems
- Rule-based Expert Systems
- Fuzzy Systems
- Uncertainty Management
- Neural Computing
- Genetic and Evolutionary Computing
- Hybrid Approaches

Reading

2. Research papers which will be distributed to the students; students will also be directed to Web resources on the subject.
Internet and Web Technologies (IWT)

Aims of the Module

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.

Staff: Peter Wood

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

Module URL: [http://www.dcs.bbk.ac.uk/~ptw/teaching/IWT.html](http://www.dcs.bbk.ac.uk/~ptw/teaching/IWT.html)

Pre-requisites and co-requisites to the module

A first module in programming.

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 and PHP)
- The transport layer (e.g., TCP, UDP)
- The network layer (e.g., IP, DHCP, ICMP)
- The link layer (e.g., Ethernet, ARP)

Reading

Mobile and Ubiquitous Computing (MUC)

Aims of the Module

Students taking this module will:

- study the novel aspects of mobile, ubiquitous and pervasive computing systems
- study the principles, research problems and applications of the Internet of Things
- acquire a range of design skills for software development in Android
- acquire systems development experience with mobile and ubiquitous computing technologies
- help students develop self-study skills so that they can keep up with the rapidly changing technologies, tools and techniques in the area

Staff: George Roussos

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

Module URL: http://www.dcs.bbk.ac.uk/~gr/muc/

Pre-requisites and co-requisites to the module

Prerequisites: a first course in networks and a first course in software engineering (e.g. as taught in a typical UK undergraduate degree in computer science). Significant experience in Java programming including networking, data access and concurrent programming techniques.

Syllabus

- Wireless and mobile networks
- Routing and mobility aspects of IP networks
- Smartphone components
- Radio Frequency Identification (RFID) and the IoT
- Processing sensor streams
- Location sensing technologies
- Privacy in mobile location sensing systems
- Programming with Android

Reading

Programming Paradigms and Languages (PPL)

Aims of the Module

To create a basic understanding of different programming paradigms and how they can be used in developing software. To provide with the opportunity to further develop the scope of their problem solving skills by studying advanced programming languages and new programming paradigms.

To enable students to understand the key differences between the various programming paradigms and the applicability of these paradigms to different programming problems. To enable students to deal with the changing requirements of the current day (and future) programmer where "polyglot" programming (the ability to mix and match languages and technologies appropriately) is fast becoming the norm.

Staff: Keith Mannock and Trevor Fenner

Assessment: By 2-hour written examination and practical coursework. The written examination has a weighting of 80% and the coursework has a weighting of 20% of the final mark.

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

Pre-requisites and co-requisites to the module

Introduction to Software Development (BUCI021S7) with a distinction level grade, or Programming in Java (BUCI033S7), or a similar course or relevant experience (as determined by the module leader).

Syllabus

- Definition of syntax and semantics
- Variable scoping and binding - lexical/static and dynamic
- Normal and applicative order evaluation, parameter passing mechanisms
- Storage allocation: run-time stack, heap storage and garbage collection
- Language support for abstract data types - arrays, maps, lists, etc.
- Data abstraction and libraries, collections, iterators
- Recursion, including tail recursion optimisation
- Continuations, including tail recursion optimisation
- The imperative (procedural and object-oriented) language paradigm
- The functional and logic language paradigms: lambda expressions, environments, predicates, etc.
- Process oriented languages
- Domain Specific Languages: scientific computation, symbolic computation, web and Internet computing.

Indicative Reading

1. B. A. Tate, Seven Languages in Seven Weeks: A Pragmatic Guide to Learning Programming Languages, Pragmatic Bookshelf, 2010.
Search Engines and Web Navigation (SEWN)

Aims of the Module

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: (i) technical foundations, (ii) core search and navigation technologies and (iii) 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.

Staff: 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.

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

Pre-requisites and co-requisites to the module

Experience with a modern programming language

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

Semantic Web (SW)

Aims of the Module

1. Introduce the theoretical foundations of the Semantic Web, including the standard W3C data, query and ontology languages such as Resource Description Framework (RDF), SPARQL query language, the Web Ontology Language (OWL) and the corresponding knowledge representation technologies;
2. provide students both with practical skills of building ontologies and querying the Web;
3. overview the current applications of the Semantic Web technologies in health care, media management, and industry.

Staff: 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.

Module URL: http://www.dcs.bbk.ac.uk/~michael/sw/sw.html

Pre-requisites and co-requisites to the module

None

Syllabus

- SPARQL Query Language and Terse RDF Triple Language Turtle.
- Requirements for ontology languages. From RDFS to OWL. OWL ontologies.
- Ontology engineering. OWL ontologies in life sciences and industry.
- Protégé ontology editor and framework for building intelligent systems. Reasoning with OWL.
- Introduction to Description Logic and formal semantics.
- Ontology-based data access with Ontop.

Reading

Software Design and Programming (SDP)

Aims of the Module

The main aim of the module is to provide students with the necessary skills for developing software utilising 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.

Staff: Keith Mannock and Oded Lachish

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

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

Pre-requisites and co-requisites to the module

Introduction to Software Development (BUCI021S7) with a distinction level grade, or Programming in Java (BUCI033S7), or an appropriate level of experience with a modern programming language otherwise (requires approval by the module leader).

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.
- 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.
- Concurrency and agents/actors.

Reading:

Through extensive course notes and example code.
**Module Evaluation**

As part of our quality assurance process, we ask students to anonymously evaluate programmes each term by completing module questionnaires. Students’ feedback helps us to further develop the course and the individual modules.

Typically, questionnaires include two parts. In the first part students are asked to rate several aspects of the modules, while in the second part to answer some open ended questions. An example questionnaire is presented below.

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### Course Unit Questionnaire

This questionnaire is part of our continuing effort at Birkbeck to improve courses and teaching, and to promote learning. We value your anonymous completion of this form. We will take into account your feedback in the further development of this course unit/module, and we will report to you on any action taken.

Please answer all the questions that apply to you by ticking the category which best reflects your view. Overleaf there is space for you to provide feedback in your own words. If you are from a disadvantaged or minority group, please also consider what follows in the light of your specific needs/circumstances.

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Open-ended comments

What did you like about this unit/module?

How could this unit/module be improved?

Please use this space for any further comments you would like to make about the unit/module.

Thank you for taking the time to complete this questionnaire.
Project Guidelines

Each student is required to undertake an individual project, under the supervision of a staff member, which should represent one-third of the student’s effort for the degree (60 credits). The project grade is determined by assessment of the project proposal (20%) and the project report including program documentation (80%).

Aims of the Project

The main aims of the project are to offer students the opportunity to:

- develop a systematic understanding and critical awareness of an agreed problem relevant to the MSc programme as described in a project proposal form
- plan and execute a major piece of programming work appropriate to the MSc programme
- critically present existing approaches in the problem area, place their own approach in the wider area and evaluate their contribution
- gain experience in communicating complex ideas/concepts and approaches/techniques to others by writing a comprehensive, self-contained report.

Choosing a Project

The project must relate to one or more modules on the MSc programme. Additional requirements depend on the particular Masters Programme.

- For the MSc in Advanced Computing Technologies, MSc in Data Analytics, MSc in Information and Web Technologies and MSc in Intelligent Technologies, the project should build on advanced topics in computing technologies in order to develop a system and/or algorithms whose design is by no means obvious at the outset of the project.
- For the MSc in Data Analytics, the project should have a main focus in the area of data analytics.
- For the MSc in Information and Web Technologies, the project should have a main focus in the area of information and web technologies.
- For the MSc in Intelligent Technologies, the project should have a main focus in the area of intelligent technologies.

A brief series of lectures giving students guidance on how to plan, organise, and execute their projects is given early in the autumn term. Further details on MSc ACT projects and preparing project reports will be distributed during the year and published on the intranet [http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_ACT_project](http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_ACT_project) and [http://www.dcs.bbk.ac.uk/courses/act/MSc_ACT_project-instructions.pdf](http://www.dcs.bbk.ac.uk/courses/act/MSc_ACT_project-instructions.pdf) and on Moodle ([moodle.bbk.ac.uk](http://moodle.bbk.ac.uk)). A summary is provided here.

Students are expected to come up with their own ideas for projects in consultation with a lecturer or choose one of the projects proposed by staff - a list of some ideas for projects can be found at: [http://www.dcs.bbk.ac.uk/r/doc/staff-interests.php](http://www.dcs.bbk.ac.uk/r/doc/staff-interests.php)

In order to arrange supervision for a project, a student should discuss possible projects directly with the lecturer who seems the most appropriate for the topic; lecturers’ research interests are listed below and more details can be found on their personal webpages. However, do not feel you can only approach a lecturer with research interests directly related to the area you would like to pursue in your project. It can happen that a lecturer will be interested in discussing a possible project which, while not very directly related to their main research interests, nonetheless has an aspect of particular interest to that lecturer. If you feel uncertain about identifying a suitable supervisor for your project contact the Projects Tutor.
A student intending to submit a project report in a particular year must develop a project proposal agreed with a supervisor and submit it for assessment together with a project proposal form by the deadline noted below.

Discussions with prospective supervisors need to be initiated in the autumn term. There is a page recording which supervisors have agreed to supervise which students linked from http://www.dcs.bbk.ac.uk/r/doc/studentprojects.php so that you can see which staff members already have a full quota of students to supervise. Bear in mind, however, that a supervisor may already be in discussion with a number of potential project students well in advance of agreement of a proposal, and so only by speaking with a potential supervisor can you be sure that it is will be possible for that supervisor to consider supervising your project.

**The Project Proposal**

The project proposal is an important part of the project module - it has a 20% weight and the expected length is 2000-3000 words. The proposal should meet the following criteria:

- It identifies the objectives of the project.
- It describes the problem that the project will address and its relevance to the MSc Programme followed.
- It presents background research on the problem and possible solutions.
- It identifies an appropriate approach/methodology which will be followed during the project.
- It includes a project plan which shows how the project objectives can be met within the required timescale.

The accompanying project proposal form is used to record information about the project and sets out the marking scheme which will be used by examiners. It is also used to specify College hardware or software that you hope to use in your project. This is particularly important if you intend to use something out of the ordinary. It enables the Systems Group to estimate the probable demand on their resources and to alert supervisors if there is likely to be a problem with this.

The proposal is marked by the supervisor and a second marker. Their comments will be sent to the students during the summer term so that the students can take these into account when working on the project.

**Important dates**

Project proposals and reports are examined on only one occasion each year with deadlines as follows. The rules concerning late submission of the project proposal and project report are the same as for coursework.

**Submission of project proposal and proposal form:** Monday 11 April 2016  
**Submission of project report:** Monday 19 September 2016

The proposal and proposal form must be submitted using the Virtual Learning Environment (VLE) Moodle (moodle.bbk.ac.uk) -ITS user name and password are required.

The project report must be submitted using the Virtual Learning Environment (VLE) Moodle (moodle.bbk.ac.uk) -ITS user name and password are required. Two hard copies must also be submitted to the Programme Administrator by the deadline.

The proposal and report will be submitted to the JISC Plagiarism Detection Service.
Assessment Criteria

To pass a project the markers assess whether the project proposal and project report meet the following criteria. They also assess any other aspect of special relevance for the project.

Project Proposal:

- **Background research, presentation of the problem – aims and objectives**: The proposal specifies a suitable problem, and discusses its requirements. It also reviews potential approaches and evaluates them.

- **Plan for developing the solution**: A suitable development/research method is chosen. The project is broken down into manageable chunks.

- **Presentation of the proposal**: Assessed as for the report – see below.

Project Report:

- **Specification and design**: Before starting the implementation, a specification and design of the system/software is laid out.

- **Implementation, or execution of research**: The key stages of the implementation/research are explained. The implementation/research is sound.

- **Testing, results, analysis and critical evaluation**: The report attempts to provide a clear and justified reflection upon the contribution and its limitations. It discusses how the software meets the specified requirements. A running version of the software is demonstrated to the supervisor (and an executable/source code on CD/DVD is turned in with the report).

- **Presentation of the proposal/report and documentation**: These are coherent in style and structure. They clearly communicate the student's contribution to the reader.

For a distinction, a student would have to attempt a challenging project (this should be discussed and agreed with the potential supervisor) and gain a high grade under each of the above headings. To award a distinction the markers assess the report according to the following criteria:

Project Proposal:

- **Background research, presentation of problem – aims and objectives**: A challenging problem is specified and clearly outlined: this includes its context and the technical/user requirements. The student shows a clear understanding of the researched material. Potential approaches are reviewed and critically evaluated, highlighting strengths and weaknesses of each.

- **Plan for developing the solution**: An appropriate development/research method is chosen and its suitability is well-justified. The project is broken down into subtasks that are logically coherent. In the case of unknowns (e.g. open research questions) “fallback” plans are laid out.

- **Presentation of the proposal**: Assessed as for the report – see below.

Project Report:

- **Specification and design**: The specification and design of the system/software shows a clear understanding of what needs to be done to meet the requirements, and is well-rounded, i.e.
the components fit together in a coherent way.

- **Implementation, or execution of research:** The key stages of the implementation/research are clearly explained. The implementation/research is done to a high standard.

- **Testing, results, analysis and critical evaluation:** The solution demonstrates real insight into the problem/research question. There is clear and justified reflection upon the contribution and its limitations. The key results are accurately analysed and their relevance is explained. It is discussed how the software meets the specified requirements and is shown to be reliable. The author critically assesses the results and draws relevant conclusions from the study. A running version of the software is demonstrated (as above).

- **Presentation of the proposal/report and documentation:** Complex issues are explained clearly and concisely. The content is well-organised and structured in a way that demonstrates the links between the concepts presented. The proposal/report shows that the student clearly understands the researched material. The solution and any other claims made by the students are well-justified. The author uses various resources and cites relevant resources using an appropriate consistent referencing style. The proposal/report is of professional quality and contains very few, ideally no, typographic errors.

Work that meets some, but not all, of the criteria for distinction may be considered for a merit. A merit might be awarded for a respectable, if only partially successful, attempt at a challenging project, or for a less ambitious project carried out, and written up, to a high standard.

The separate examiners grade the project independently and then meet to arrive at an agreed grade. Students may be called upon to make a presentation of their projects to a sub-committee of the Examination Board to demonstrate their grasp of the material.

**Staff Research Interests**

Staff carry out their research within two main research groups in the Department: Information Management and Web Technologies and Computational Intelligence. The London Knowledge Lab is a multi-disciplinary research centre which brings together computer scientists from Birkbeck and social scientists from the Institute of Education to explore the ways in which digital technologies and new media will shape the future of learning and knowledge. In addition, there are informal interest groups which emerge and evolve over time within and between the main research groups, for example in search engine technology, sensor networks, semantic web, computer vision, cluster analysis, adaptive systems and learning environments.

The research interests of individual staff members are as follows.

- Andrea Cali: semantic information integration, logics and databases, ontologies and databases with emphasis on query answering and optimisation, Deep Web.

- Carsten Fuchs: formal properties of programming languages and environments.

- Trevor Fenner: Algorithms and data structures; combinatorial and probabilistic methods; graph theory; web models; programming languages; life sciences informatics.

- Sergio Gutierrez: learning technologies, complex systems and swarm intelligence behaviours.

- Tingting Han: formal verification and synthesis of probabilistic systems, and its applications.
• Roman Kontchakov: semantic data integration and ontology-based data access, ontology languages and description logics, the Semantic Web, and spatial and temporal knowledge representation and reasoning.

• Oded Lachish: algorithms and their applications, in particular sub-linear algorithms and property testing.

• Mark Levene: Web information retrieval and navigation; web data mining; adaptive web technologies; machine learning in games.

• George Magoulas: Adaptive modelling from data; computational intelligence; intelligent adaptive systems; user modelling; personalised learning environments; nature-inspired learning; neural networks learning.

• Keith Mannock: Software engineering; information retrieval and hypermedia; programming languages.

• Nigel Martin: Information management, integration, analysis and mining, with a particular interest in bioinformatics and life sciences applications.

• Steve Maybank: Computer vision; CCTV surveillance; tracking; object recognition; statistics.

• Szabolcs Mikulas: Algebraic, modal and temporal logic, and its applications.

• Alex Poulovassilis: Information access, integration and personalisation, learning environments.

• Igor Razgon: Artificial intelligence.

• George Roussos: RFID, pervasive computing, wireless sensor networks.

• David Weston: data analysis, data mining, machine learning, machine vision.

• David Wilson: Maturity models in information systems development; strategy and cross-cultural issues in global information systems.

• Peter Wood: Query languages; rule languages; query optimisation; XML compression.

• Michael Zakharyaschev: Knowledge representation and reasoning; mathematical and computer science logic; modal, spatial, temporal and description logics.

• Dell Zhang: Machine learning; information retrieval; data mining.
Assessment and Examinations

The programme is modular, and students will be assessed in each of their 8 modules and in their project. To pass a module or the project, students must obtain a mark of at least 50%.

For each taught module there will be a 2-hour or 3-hour written exam in May or June. In addition, some modules have a compulsory coursework component that must be passed in order to pass the module. For other modules, the coursework and exam marks are combined according to a given weighting, without each component having to be passed separately. This information is provided in each module description.

Exams are scheduled by the College examinations office on specified dates: these are posted well in advance on the My Birkbeck website and are non-negotiable. Students are required to sit their exams at the scheduled time and place at Birkbeck.

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

The College distributes exam entry forms that students need to complete by entering the modules and/or project elements that they are sitting in the given year. A student can only withdraw from an exam with the written permission of the Programme Director. This permission must be obtained at least 14 days before the first exam or by 1 May, whichever is earlier. Students who do not sit an exam and have not obtained permission to defer or withdraw their exam entry will be deemed to have failed the exam, except when this is due to illness or other reason beyond their control (see section *Mitigating Circumstances*). In these cases, documentary evidence must be submitted to the Programme Administrator and this evidence must be deemed to be satisfactory by the College. Students who withdraw from or miss an exam are usually required to enter the exam the next year. The College rules and regulations governing programmes are linked from the My Birkbeck webpage at: [http://www.bbk.ac.uk/services/rules](http://www.bbk.ac.uk/services/rules)

The project is judged on a project report of about 10,000 words (maximum 15,000 words) plus related technical submissions. Details are provided in the section *Project Guidelines* and on the programme’s intranet pages at [http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_ACT_Intranet](http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_ACT_Intranet).

*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.*

The students should also consult the Sections on *Late submission of coursework and project, Mitigating circumstances, Plagiarism* and *College policy on assessment offences* of this Handbook.
Late Submission of Coursework and Projects

Following recommendations of the Academic Board in March 2007 and of the Department’s Teaching Committee in June 2007, the process laid out below has been implemented for dealing with late submission of items of assessment (including coursework and projects) in this MSc Programme.

(i) Extensions are not allowed. The module leader or Project tutor should specify an absolute cut off deadline for late submission and communicate it to the students together with the normal submission deadline. The absolute cut off deadline should be no more than 10 working days after the normal submission.

(ii) It is Departmental policy to accept and mark late items of assessment submitted before the cut off deadline (see point i). Students do not need to negotiate new deadlines and there is no need to obtain prior consent of the module leader or project tutor in order to submit late. The Department is unable to accept submissions after the cut off deadline.

(iii) Any type of assessment submitted late is given two marks: a penalty mark of 50%, assuming it is of a pass standard, and the “real mark” that would have been awarded if the work had not been late. Both marks are given to the student on a feedback sheet. If the work is not of a pass standard a single mark is given. For modules where coursework is compulsory to pass the module but it is not marked, coursework received before the absolute cut off deadline is not penalised.

(iv) If a student believes that they have good cause to be excused the penalty for late submission, they must make a mitigating circumstances claim (see the Mitigating Circumstances section in this Handbook) for consideration by the Mitigation Sub-Committee (see point v below). The claim form and accompanying documentary evidence must be submitted within 7 days of the cut off deadline. If no such documentation is received prior to the meeting of the Mitigation Sub-Committee the “real mark” will not be considered and the penalty mark will stand. When circumstances, such as serious accident or illness, long-term hospitalization, prevent a student from submitting evidence in time, the absolute cut off deadline for submitting accompanying documentation is the first date of the examination period as specified by the College each academic year (typically examinations at Birkbeck start in the first week of May).

(v) All requests are held over and considered by a sub-group of the relevant Exam Board prior to a meeting of the full Exam Board. This sub-group, called the Mitigation Sub-Committee, will meet termly and/or prior to the full Exam Board, as appropriate, and its results are presented to the full Exam Board.
Mitigating Circumstances

The Academic Board in March 2007 approved the following guidelines for dealing with mitigating circumstances in relation to examinations and other forms of assessment in order to ensure consistent and fair practice across the College. For further information, students may consult the document on mitigating circumstances linked from:
http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/coursework/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.

Principles

Consideration by Boards of Examiners of claims for mitigating or extenuating circumstances are founded on the following principles:
- that students are ordinarily expected to meet all deadlines for coursework and to attend all examinations, as prescribed in the Programme Regulations, and to make a ‘reasonable attempt’ to answer examination questions, coursework assignments or other modes of assessment;
- that it is the students’ responsibility to submit details in writing and in advance (where possible) of any mitigating circumstances they would like the Board of Examiners to take into consideration;
- that information provided by students in support of such claims shall be regarded as confidential;
- that penalties may be incurred by late- or non-submission of coursework by the due deadline or by failure to attend and attempt a prescribed examination.

Mitigating Circumstances

Not all ‘circumstances’ warrant the same consideration. Some are clearly beyond the reasonable control of students and some are not. The examples given below are not exhaustive but will serve as a guide to what Boards of Examiners will regard as acceptable ‘mitigating circumstances’ when making academic judgements. In all instances, appropriate certification (e.g. medical certificate, crime report etc.) must be provided for a circumstance beyond the reasonable control of the student to become eligible for consideration.

Examples of circumstances beyond the reasonable control of the student:
- bereavement (near relative only)
- serious accident or illness
- serious infectious disease
- burglary and theft
- childbirth

Examples of situations which may be considered beyond the reasonable control of the student:
- medical operation (if approved prior to the point of assessment or an emergency)
- hospital tests (if approved prior to the point of assessment or an emergency)
- being taken ill during an examination
- significant accident, injury, acute ailment or condition
- unanticipated and unavoidable professional obligations
- private or public transport failure leading to delays of more than 1 hour (corroborative evidence is required to verify such a delay)
Examples of circumstances that would NOT ordinarily be considered mitigating circumstances:

- accidents to friend or relatives (unless within 3 days prior to deadline or examination or where student is sole carer)
- family illness (except in an emergency or where the student is the sole carer)
- examination nerves
- feeling generally anxious, depressed or stressed (unless medically certificated and notified in advance i.e. at least 2 weeks)
- clash with paid employment
- minor accidents or injuries
- pregnancy
- cold, cough, upper respiratory tract infection, throat infection, unspecified viral infection
- childcare problems that could have been anticipated
- domestic problems (unless supported by independent evidence)
- mistaking the deadline, or time management problems (including alarm not going off)
- private or public transport failure leading to delays of less than 1 hour
- general financial problems
- legal problems (unless required to attend Court on the day of an examination or assessment)
- holidays or booked travel arrangements
- house moves
- notes burned or stolen (unless supported by a fire or police report)
- intermittent or last minute computing equipment problems (discs, machines, printers, viruses)
- handing-in problems
- inclement weather (unless exceptional/severe conditions)
- ignorance of the Regulations or examination/assessment arrangement

If a student feels their circumstances warrant consideration by the Board of Examiners they should submit a MITIGATING CIRCUMSTANCES CLAIM FORM (see below) to the Programme Administrator at the earliest opportunity (within 7 days of the assessment deadline or examination). In 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. 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:

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

Examples of acceptable documentary evidence
- evidence (e.g. death certificate or letter from GP confirming bereavement)
- letter from lawyer, hospital, GP or employer

Examples of non-acceptable documentary evidence
- self-certification of illness
- letter written by a friend or acquaintance
Mitigating Circumstances Claim Form (for academic session 2014/15)

You must submit this form at the earliest possible opportunity, and at the latest 7 days after the assessment deadline or date of exam for a module, unless otherwise stated by the appropriate School. Submission after that date must be in line with the College procedure for ‘Appeals Against Decisions of Boards of Examiners’. Claims that do not include relevant information or documentary evidence will not be considered. Acceptance of mitigating circumstances claims is at the discretion of the College only. All information submitted as a claim of mitigating circumstances will be treated as confidential.

Please check our website for further information at: [http://www.bbk.ac.uk/mybbk/services/rules/](http://www.bbk.ac.uk/mybbk/services/rules/)

Surname: ........................................ First Name(s): ........................................

Student Number ................................ Programme of Study: ........................................

Current Email Address: ........................................ (you will normally be contacted with a decision by email)

Please list all modules for which you are submitting a claim of Mitigating Circumstances.

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<th>Assessment affected (e.g. examination, first coursework, in-class test)</th>
<th>Coursework</th>
<th>Examination</th>
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<td>Deadline</td>
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Please complete the following information by ticking the appropriate box and completing the related columns.

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<th>Type of Original Evidence you are Submitting</th>
<th>Tick</th>
<th>Date-Covered by Evidence</th>
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<tr>
<td>Doctor’s note or other medical evidence</td>
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<td>Police letter or form</td>
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<td>Employee’s letter (part-time students only)</td>
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<td>Other (Please specify)</td>
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<tr>
<td>Please see my approved Individual Student Support Agreement</td>
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All claims should include wherever possible original independent documentary evidence, e.g. medical certificate. If you fail to provide this information your claim may not be considered. Please note that you may resubmit a previously rejected claim only if it is supported by significant additional evidence. All claims made after the set deadline should give valid reasons for the late submission of the claim.
Please explain how the circumstances have affected your work and/or studies:

________________________________________________________________________________________________________________________________________________

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GROUP WORK: If you are submitting a claim for group work you must list the names and ID numbers (if known) of all the other members of the group. Use the boxes below:

<table>
<thead>
<tr>
<th>Surname</th>
<th>First Name</th>
<th>ID Number (if known)</th>
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If you are submitting your claim after the assessment has taken place please indicate the reasons for not having submitted previously. Documentary evidence should be provided:

________________________________________________________________________________________________________________________________________________

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I confirm that the above information is correct

Signature: ____________________________ Date: ____________________________

Return this form to your Course Administrator as soon as possible.

Departmental use only:

Received: ____________________________ SITS: ____________________________
**Plagiarism**

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 encyclopedia), 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 project.
- 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 your 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 project.
- 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 by someone else. According to paragraph 7 of the “College Policy on Assessment Offences”: “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 My Birkbeck webpage:

[http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/offences/plagiarism](http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/offences/plagiarism)

Each piece of submitted coursework or project must have an “Academic Declaration” signed by the student(s), which certifies that the authors have read and understood the sections of plagiarism in this Handbook and confirm that the work is their own, with the work of others fully acknowledged. Submissions must be also accompanied by a declaration giving us permission to submit coursework to a plagiarism-testing database that the College is subscribed.

The Academic Declaration text should include the following statements: “The author(s) certify that they have read and understood the sections of plagiarism in the Programme Handbook and confirm that the work is their own, with the work of others fully acknowledged. The author(s) give permission to submit their coursework to the plagiarism-testing database used by the College.”

If you submit work without acknowledgement or reference of other students (or other people), then this is one of the most serious forms of plagiarism. When you wish to include material that is not the result of your own efforts alone, you should make a reference to their contribution, just as if that were a published piece of work. You should put a clear acknowledgement (either in the text itself, or as a footnote) identifying the students that you have worked with, and the contribution that they have made to your submission.
The “College Guideline for Prevention of Plagiarism” also states: “Schools have the right to request any piece of assessment to be submitted for screening by a College approved plagiarism detection service. A deadline for this submission may also be set by the relevant School. Failure to comply with any such request, or failure to meet the relevant deadline, will constitute an assessment offence and will be dealt with according to the College Policy on Assessment Offences.”

For an update on procedures for dealing with plagiarism, students can consult the following document: [http://www.bbk.ac.uk/reg/assessment/current_students/taught_postgrad/plagiarism](http://www.bbk.ac.uk/reg/assessment/current_students/taught_postgrad/plagiarism)

**Avoiding plagiarism**

**The College offers the learning module “Avoiding Plagiarism” on Moodle VLE to all students. This module will help you understand plagiarism and explain in detail how one can avoid plagiarism.** Below some examples are given from this module.

**Citing other peoples’ work properly**

Citations give brief details of the source at the point in the text where the source is used.

Citations using the Harvard system show the author and date of publication and the page number for quotations. For example:

Oakshott (2001) argues that ...

Or

Oakshott (2001, p. 3) argues that "democracy is dead".

If a quotation is longer than two or three lines, it is often indented using block formatting. By convention, block quotations do not usually need quotation marks - check with your course lecturer for guidance.

For example:

Worsley (2002) argues that Karl Marx is still very influential:

Karl Marx has probably affected the course of twentieth-century history more than any other single thinker. Because of this, his ideas have generated a vast output of writings (Worsley, 2002, p. 1).

Reference:

**Referencing**

References include the full bibliographic information about the source, such as the author(s)'s name(s), date of publication, title of work, place of publication, and publisher. This information is usually given in the section called Reference List or Bibliography at the end of the text. The key principle is that you should give enough information to allow another person to find the source for themselves.

Here are some examples using the Harvard referencing system:

[when you are referring to a book]


[when you are referring to a chapter in a book, where 'ed.' means editor, and 'edn.' means 'edition']

[when you are referring to a journal article]


[when you are referring to a webpage]

W3C, Web Accessibility Guidelines and Techniques, available online at http://www.w3.org/WAI/guid-tech.html. Independent of their type (e.g. book, article, webpage), all references are included at the end of a document in alphabetical order starting from the author’s name as in the example above.

Paraphrasing

Here are some examples from the plagiarism module that might help you to understand which forms of paraphrasing are acceptable and which are treated as plagiarism.

First, the original extract is give, taken from the book, Marx and Marxism, by Peter Worsley.

*Karl Marx has probably affected the course of twentieth-century history more than any other single thinker. Because of this, his ideas have generated a vast output of writings, ranging from texts written by revolutionaries aimed at telling people how to do revolution - how to carry on Marx's work of demolishing capitalism and creating a new socialist society - to the many hundreds of volumes dedicated to proving that Marx was wrong about practically everything.*

*Acceptable practice: Worsley (2002) suggests that Karl Marx has had a significant impact on the course of twentieth-century history. He argues that Marx’s ideas have led to a great deal of writing, across a spectrum from promoting his call for revolution to trying to show he was wrong in his analysis and predictions.*

*Plagiarism: Karl Marx, the inspiration for revolutionary activity in many countries, has probably affected the course of 20C history more than almost any other thinker. Because of this, his ideas have generated a vast output of writings, ranging from texts written about revolution - how to demolish capitalism and create a new socialist society - to books dedicated to proving that Marx was wrong about practically everything.*

*Copying the whole text without using quotation marks and without appropriate acknowledgement is considered plagiarism: Karl Marx has probably affected the course of twentieth-century history more than any other single thinker. Because of this, his ideas have generated a vast output of writings, ranging from texts written by revolutionaries aimed at telling people how to do revolution - how to carry on Marx’s work of demolishing capitalism and creating a new socialist society - to the many hundreds of volumes dedicated to proving that Marx was wrong about practically everything.*
College Policy on Assessment Offences

An assessment offence is defined as “any attempt whether successful or unsuccessful to achieve an unfair advantage in any element of assessment over other candidates participating in the assessment”. Assessment Offences are categorised as Plagiarism, Collusion, Examination Offences and Other Offences. This policy may apply to any piece of work submitted for formal assessment towards a College or University award at Birkbeck, University of London.

The policy has two stages depending on the severity of the offence. The first stage provides for a panel hearing at the School level. The second stage provides for College level proceedings.

Penalties are severe up to immediate termination of the student’s registration and enrolment with no award made for credits so far attained.

Students should consult the document entitled “Policy on Assessment Offences” for definitions of the various offences and determination of the associated penalties. This is linked from the My Birkbeck webpage: http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/offences
Award of the MSc

The award of the degree is considered by an Examination Board that meets in November, after which students are notified of their results by the College. The Examination Board also meets in July to consider the results of the modules examined in May/June. After this meeting, the Department informs students by letter of their overall progress, but only the College is allowed to inform students of the actual marks received for each module, normally in August.

Each MSc taught module available on the programme has a value of 15 credits while the project has a value of 60 credits giving a total of 180 credits for the 8 taught modules and the project.

The programme regulations follow the College Common Awards Scheme. To pass a taught module or the project, a student must obtain a mark of at least 50%. A student may be offered a compensated fail mark when obtaining a mark between 40-49% in at most two 15-credit taught modules.

To be awarded the MSc, students must pass the project and at least 6 of their 8 taught modules; they must in addition obtain an average mark of at least 50% over the 8 taught modules, and at least 40% in any taught modules failed (30 credits maximum).

To be awarded the MSc with Merit, students must obtain an average mark of at least 60% over the 8 taught modules and project.

To be awarded the MSc with Distinction, students must normally obtain a distinction mark in the project, must pass all 8 taught modules, and must obtain an average mark of at least 70% over all the taught modules.

In calculating the average mark, the taught module marks and project mark are weighted to reflect their credit value.

Students may be made an award of a Postgraduate Certificate or Postgraduate Diploma in Advanced Computing Technologies provided they have passed modules of at least 60 or 120 credits respectively (no compensation for failed modules is allowed).

Students who satisfy the MSc criteria may be made an award of MSc Advanced Computing Technologies. Students wishing to follow pathways leading to awards MSc Data Analytics, MSc Information and Web Technologies or MSc Intelligent Technologies must satisfy the following additional criteria.

MSc Data Analytics

A minimum of 5 modules must be chosen from the following list reflecting research specialisation within the department.

- Big Data Analytics Using R
- Cloud Computing
- Advances in Data Management
- Data Warehousing and Data Mining
- Information Retrieval and Organisation
- Search Engines and Web Navigation
- Computational Intelligence
- Intelligent Technologies

Additionally, the project should have a main focus in the area of data analytics.
MSc Information and Web Technologies

A minimum of 5 modules must be chosen from the following list reflecting research specialisation within the Information and Web Technologies Research Group within the department.

- Internet and Web Technologies
- Mobile and Ubiquitous Computing
- Advances in Data Management
- Component-Based Software Development
- Data Warehousing and Data Mining
- Information Retrieval and Organisation
- Search Engines and Web Navigation
- Semantic Web

Additionally, the project should have a main focus in the area of information and web technologies.

MSc Intelligent Technologies

A minimum of 5 modules must be chosen from the following list reflecting research specialisation within the Computational Intelligence Research Group within the department.

- Intelligent Technologies
- Computational Intelligence
- Advances in Data Management
- Data Warehousing and Data Mining
- Information Retrieval and Organisation
- Fundamentals of Concurrent Systems (formerly Knowledge Representation and Reasoning)
- Search Engines and Web Navigation
- Semantic Web

Additionally, the project should have a main focus in the area of intelligent technologies.

Reassessment and Retaking Elements of the Assessment

If a module is not passed overall, one reassessment (but only one) is allowed for each failed element, or the entire module may be retaken. You may be reassessed in a failed coursework, written exam or the project if your marks for that element are below 50%. Any student awarded a reassessment opportunity in 2014/15 or before will not be subject to a cap for a reassessment taken in 2015/16. However, students who fail an assessment in 2015/16 and are awarded a reassessment opportunity will have their reassessment subject to a cap of 50% for the reassessed element. The cap does not apply to the retake of a whole module, including courseworks and exam.

There are no special resit exams; students resit alongside the other candidates in May/June the following year. 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.

A student who fails a taught module or the project twice fails the MSc.
Progression to the 2nd year of part-time study

First year part-time students must normally pass at least three modules in order to proceed to the second year of study. Students who do not achieve this will not be able to complete their studies in two years. Instead they will have to spend at least one year as a repeating student, retaking the failed modules. Under normal circumstances this would take place the following year and students would not be allowed to take any new modules until they had passed the failed modules. However, because some modules on this programme are taught in the evenings on alternate years only, doing so would mean that students in their third year could have no new modules available to them in the evenings. This would have the effect of extending the duration of the degree to at least four years.

As a result, we permit students in such circumstances to enrol on four new modules in their second year, postponing their second attempts at the failed modules to the third year. This is not ideal, but seems preferable to extending the duration of the degree.

Enrolment as a Repeating, Assessment Only or Dissertation Only Student

**Repeat students**, i.e. students who are retaking 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.
Deferral

In exceptional cases, students may be permitted to defer the written exams to the following year. Students wishing to defer must apply under the mitigating circumstances procedure (see deferring your exam) setting out the reasons for the deferral request, and returning the mitigating circumstances form to the programme administrator for authorisation before being sent to the Examinations Office. Registry’s deadline for deferral applications is May 1st for summer assessments. A student who defers an element of assessment has to enter for that element the following year; normally no further deferrals are permitted.

Students can apply to defer the examination of their project to the following September (i.e. at the end of an extra year of study). Students who wish to defer project submission should return the mitigating circumstances form to the Programme Administrator by 31 August.

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, except when this is due to illness or other reason beyond your control in which case a mitigating circumstances claim must be made within 7 days of the examination date or submission deadline (see the Section on mitigating circumstances). Students who withdraw from or miss an exam are usually required to enter the exam the next year.
Break in Studies and Withdrawal from a Programme of Study

A break in studies would normally be for a period of one academic year, but may be permitted for a shorter period of one or two terms depending on the structure of the programme. Applications for a break in studies of less than one term will not be considered. A break in studies is not normally permitted in the second term only as students must maintain their enrolled status in order to be eligible to enter assessments in term 3. Students who miss lectures or seminars for ill health or other reasons should discuss ways of catching up with missed work with their supervisors.

Students may spend a maximum of two years during their programme on “Break in Study” status. This may be in one period of two years, or non-consecutive shorter periods that add up to a total of two years or less.

For a break of longer than one year, the student should re-confirm their intention to return by the agreed date, or apply for a longer break as appropriate. A break in studies will commence on the day following the last recorded date of attendance. Students who have not re-enrolled or communicated their intentions towards the studies by the end of this period shall be withdrawn from the programme of study.

Applications for a break in study should be made by the student in writing to their Programme Director, who is responsible for considering the application. Students applying for an approved break in study should give details of the length of the proposed break and the reasons for the application to their Programme Director.

Students may undertake re-assessments during a Break in Study but may not retake a module or attempt a module for the first time.

Students will not be liable for fees while on an approved break in studies. However, students who have attended for part of a term will normally be liable for the fees due in that term, unless there are mitigating circumstances.

Any student who withdraws from their programme of study at the College must do so in writing to the College Registry. A student who withdraws from a programme of study at the College shall cease immediately to be a registered student at the college. A student who withdraws after the published deadline shall still be liable for any outstanding fees or fines or other associated costs.
Student Support Services

As a student, you can get access to a range of support and study facilities. Full details can be found at: http://www.bbk.ac.uk/mybirkbeck/services/facilities

Wellbeing Service

The Wellbeing Service is made up of the Counselling Service, the Disability and Dyslexia Service, and the Mental Health Service.

The Counselling Service provides assistance to students who are experiencing emotional difficulties which may be impacting upon their studies or overall experience at Birkbeck. It offers short-term, confidential counselling to all registered students. You can make an appointment for an initial consultation with a professionally trained counsellor to discuss anything that is troubling you.

The Disability and Dyslexia Service 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 Asperger’s Syndrome)

The Mental Health Service provides support and specialist advice to students with any mental health conditions which may impact upon their ability to study, including:
- anxiety disorders and phobias
- mood disorders (e.g. depression and bipolar)
- eating disorders (e.g. anorexia and bulimia)
- personality disorders and obsessive compulsive disorder
- schizophrenia

Careers and Employability

The College Careers and Employability Service provide comprehensive careers advice, events and information services for current students, both in person and online.

The Business Engagement Team (BEI School) work to develop sustainable external relationships and add value to your Birkbeck experience by facilitating professional partnerships and delivering events. Please look out for information on events held on the last evening of each academic term as well as special events throughout the year. You can also follow the School of Business, Economics and Informatics (BEI) on social media for information and conversations:
- Twitter: @BirkbeckBEI
- Facebook: BirkbeckBEI
- LinkedIn: Search ‘Birkbeck, School of Business, Economics and Informatics’
- Google+: Search ‘Birkbeck, School of Business, Economics and Informatics’

Mentoring

Using partnerships forged with Credit Suisse, PwC, Birkbeck alumni and other partners, the Business Engagement Team organise a Mentoring programme each year for students in their final year of their under-graduate programme or for those taking a post-graduate qualification. Business Mentoring at Birkbeck pairs successful applicants with industry professionals for individual advice and guidance. There are approximately 50 places available.

If you are currently employed and believe your employer may be interested in working as a partner organisation to provide more mentors for this scheme, please email: mentoring@bbk.ac.uk
Entrepreneurship
The Business Engagement Team also runs projects, events and networking opportunities to enhance your entrepreneurial thinking and to provide support for students interested in self-employment or already managing their own businesses.

Communications
You may be contacted with emails directly by the Business Engagement Team, unless you requested ‘no publicity’. These emails will inform you of upcoming events, unique opportunities with potential employers and other ways in which you may grow your network with Birkbeck. Should you encounter any difficulties in receiving these emails, please contact: Events and Communications Manager, Matthew Jayes (m.jayes@bbk.ac.uk).
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:

- Several workstation rooms
- Wireless network
- Wide range of general office and specialist computer applications
- Web-based electronic mail
- Moodle 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

Your ITS username and password will not necessarily work on systems that are locally managed by Schools and departments. Schools and departments who have locally managed equipment include Computer Science, Crystallography, Economics and Psychology, and your School will provide details of access. Students are allocated personal storage space on a networked file server. Files will remain on the server for one year after you leave.

Your 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 Service desk to have it reinstated.

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<tr>
<td>Ground Floor (next to Library entrance), Malet Street Main Building</td>
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<tr>
<td>Monday to Thursday</td>
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<tr>
<td>Friday</td>
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<td>Tel: 020 7631 6543</td>
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Library Services

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 Birkbeck Library and it is important that you familiarise yourself with the Library 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. During term-time, the Library is open

- Monday – Friday 8.30am – 11.45pm
- Saturday – Sunday 8.30am – 11.45pm

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 cooperation. 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.

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.

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 (Library Materials by Post) 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.

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.

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’.

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
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/.

Counselling
The Students’ Union offers counselling free of charge.

Birkbeck Evening Nursery
Birkbeck College has an Evening Nursery, which is available for students and current members of staff and accepts children aged 2-9 years. Full details, including opening times, may be found at: http://www.bbk.ac.uk/mybirkbeck/services/facilities/nursery.