Birkbeck
University of London
Department of Computer Science and
Information Systems

MRes
Computer Science

Programme
Handbook
2020/21

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Contents

Overview of the Programme

Programme Director:	Oded Lachish (oded@dcs.bbk.ac.uk)
Programme Administrator:	Stacey Hine (phd@dcs.bbk.ac.uk)
Admissions Tutor:	Andrea Cali (a.cali@dcs.bbk.ac.uk)
Projects Co-ordinator:	Oded Lachish (oded@dcs.bbk.ac.uk)
Disability Officer:	Andrea Calì (a.cali@dcs.bbk.ac.uk)

The MRes in Computer Science is an advanced postgraduate programme of study focusing on key areas of expertise and research specialisation within the Department of Computer Science and Information Systems:

- **Algorithms, Verification and Software:** this includes theoretical approaches to cope with computational intractability, machine learning and bio-inspired computational methods, deep networks, software engineering, as well as applications to real-world tasks, such as software verification and scheduling, computer vision, cognitive modelling, adaptive systems, psychophysiological modelling, adaptation and evolution in complex environments.
- **Experimental Data Science:** the use of real-world data and observations captured from full- scale information systems to ground testable theory and conduct experimentation. Particular ar- eas of investigation include Web, social, human dynamics, applied machine learning for big data, visual and geometric computing, management, integration, and mining of life sciences data, mo- bile computing and the Internet of Things, applications in the digital economy, healthcare technologies and technology-enhanced learning.
- **Knowledge Representation and Data Management:** This includes research on modern ways of storing, managing, and retrieving information from various data sources, in particular, using logic-based knowledge representation technologies such as those developed for the Semantic Web. Particular areas of investigation include data integration, data management, knowledge representation and reasoning, logic, ontology-based data access, query languages and query optimisation, semantic web technologies.

Students who complete this MRes will have gained specialised knowledge in their chosen area which they will be able to use in analysis of problems arising in that area, evaluation and application of technologies, and research into new technologies. In addition, they will have gained the appropriate foundations for continuing into an MPhil/PhD programme.

Full-time students undertake a one-year supervised research project, plus the compulsory Research Methods (RM) module, and also select 3 further taught modules, relevant to their specialisation, from a list of options shown below. Part-time students undertake the research project, Research Methods module, and 3 other taught modules over two years. Students should select modules appropriate to their chosen research area: such selections are subject to approval by the Programme Director.

Not all modules on the list below will necessarily be offered each year. In addition, the availability of modules is subject to timetabling constraints and student demand. In the event that a 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.

- Advances in Data Management (ADM)
- Data Analytics Using R (BDA)
- Cloud Computing (CC)
- Information and Network Security (INSEC)
- Natural Language Processing and Information Retrieval (NLP)

- Machine Learning (ML)
- Internet and Web Technologies (IWT)
- Mobile Computing and the Internet of Things (MCIT)
- Semantic Technologies (ST)

Students should select modules from the above list after discussing it with their project supervisor. Students starting the programme should also arrange a meeting with the MRes pro- gramme director to discuss their choices of modules.

The information in this handbook is specific to the MRes Computer Science. Some of the modules use a Virtual Learning Environment called Moodle (moodle.bbk.ac.uk).

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 2020/21 are as follows:

Autumn	5 October to 18 December, 2020
Spring	11 January to 26 March 2021
Summer	26 April 2021 to 9 July 2021

Please refer to http://www.bbk.ac.uk/about-us/term-dates for the College holiday closing times.

The taught programme covers two terms of approximately eleven weeks each. The summer term is devoted to exams and the research project. The final project report is handed in by full-time and part-time year 2 students in September. An interim project report is handed in by full-time and part-time year 1 students in March. Part-time year 1 students submit a further progress report on their project in September.

Any student who decides to withdraw from the programme should inform the Programme Administrator, 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. It is especially important for international students that they inform the department about any absence.

Lecture timetables

The teaching venues will be announced online at: http://www.dcs.bbk.ac.uk/study/ as well as in the MyBirkbeck portal. Below is the timetable for the modules. Note that occasionally there might be changes (e.g. swapping of lectures between modules, or additional tutoring sessions). Please consult the web pages of the modules regularly for up-to-date information.

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

*The timetable for **Research Methods**, which must be taken by all students in their first year (in the autumn term), will be posted at:* http://www.dcs.bbk.ac.uk/research/pursuing-a-research-degree/research-methods-course *(dates, times and room to be confirmed).*

Timetables are given below for both full-time and part-time students. Information on room locations is online at: http://www.bbk.ac.uk/roombookings/rooms

Timetable 2020/21				
Day	**Autumn**		**Spring**	
	Module	Time	Module	Time
Monday	ST MCIT/INSEC	6-9pm	ADM	6-9pm
Tuesday	BDA	6-9pm	NLP/IWT	6-9pm
Wednesday				
Thursday	~~IRS(not available)~~	6-9pm	ML	6-9pm
Friday			CC	6-9pm

Note that some modules are offered in the evening on alternate years only. ***Part-time students must select three further modules, in addition to RM, in such a way as to ensure that they can complete them in 2 years.***

Academic 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, Andrea Cali andrea@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 Complaints Policy is linked from the webpages at 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 expressed. 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: www.birkbeckunion.org

For more general information about Birkbeck, student services and regulations have a look at www.bbk.ac.uk/student-services .It is expected that students familiarise themselves with these pages so that they are aware of the services and regulations.

The School of Business, Economics and Informatics has a **Learning Co-ordinators** who can provide general support to students in their studies. They can offer help and support on a variety of topics ranging from writing skills to basic maths. See www.bbk.ac.uk/business/current-students/learning- co-ordinators for details.

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

Availability of Optional Modules

Optional modules' 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. If an optional module is under-subscribed it may not run at all.

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 (90%) and practical coursework (10%).

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.
- Graph databases

Background Reading

1. R. Ramakrishnan and J.Gehrke, *Database Management Systems*, McGraw-Hill 2003 (3rd Edition)
2. A.Silberschatz, H.F.Korth and S.Sudarshan, Database System Concepts, McGraw-Hill 2011 (6th Edition)
3. M. T. Oszu, P. Valduriez, Principles *of Distributed Database Systems*, Prentice-Hall 1999 (2nd Edition)
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.

Data Analytics using R (BDA)

Aims of the Module

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 (weighting 80% of final module mark) and practical coursework (20% of the final mark).

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

Pre-requisites and co-requisites to the module

Experience with a modern programming language.

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.
- Clustering: K-means, K-medoids, Hierarchical clustering, X-means.
- 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

1. G. James, D. Witten, T. Hastie and R. Tibshirani, *An Introduction to Statistical Learning: With Applications in R*, Springer, 2013. Available online at: http://www-bcf.usc.edu/~gareth/ISL/

Cloud Computing (CC)

Aims of the Module

This module aims to introduce back-end cloud computing techniques for processing "big data" (tera-bytes/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: Stelios Sotiriadis

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

Module URL: http://www.dcs.bbk.ac.uk/~dell/teaching/cc/

Pre-requisites and co-requisites to the module

Very good knowledge of Java programming is essential.

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

1.   J. Rosenberg and A. Mateos, *The Cloud at Your Service*, Manning, 2010.
2.   J. Lin and C. Dyer, *Data-Intensive Text Processing with MapReduce*, Morgan and Claypool, 2010.
3.   Extensive use is made of other relevant book chapters and research papers that are distributed or provided online.

Information Security (IS)

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. De- spite 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: Igor Razgon

Assessment: By 2-hour written examination and practical coursework, weighting 80% and 20% of the final mark 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

1. K.M. Martin, Everyday Cryptography: Fundamental Principles and Applications, OUP, 2012.
2. R. Anderson, *Security Engineering* 2nd edition, John Wiley & Sons, 2008.
3. W. Stallings, *Cryptography and Network Security* 5[th]edition, Pearson, 2010.
4. M. Bishop, *Computer Security: Art and Science,* Addison-Wesley, 2008.
1. B. Schneier, *Applied Cryptography*, John Wiley & Sons, 1996.

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% of the final mark respectively.

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

Pre-requisites and co-requisites to the module

A first course in programming, as taught in a typical UK undergraduate degree in Computer Science.

Syllabus

- Introduction to the Internet and its applications
- Web languages (e.g., HTML, XHTML, XML)
- 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)
- Server-side processing (e.g. using CGI, ASP, JSP)
- The transport layer (e.g., TCP, UDP)
- The network layer (e.g., IP, ICMP)
- The link layer (e.g., Ethernet, ARP)

Reading

1. S. Jacobs, *Beginning XML with DOM and AJAX*, Apress, 2006, ISBN 1-59059-676-5.
2. A. Moller and M. Schwartzbach, *An Introduction to XML and Web Technologie,* Addison Wesley, 2006, ISBN 0-321-26966-7.
3. J. F. Kurose and K.W. Ross, *Computer Networking: A Top-Down Approach (6th edition)*, Pearson, 2012, ISBN13: 9780273768968, ISBN10: 0273768964.
4. K.R. Fall and W. R. Stevens, TCP/IP Illustrated, Volume 1, Second Edition, Addison-Wesley, 2012, ISBN 0-321-33631-3.

Machine Learning (ML

Aims of the Module

The module covers computational algorithms for learning from data, data-driven decision making and complex problem solving. It provides an introduction to machine learning methods, such as neu- ral networks, fuzzy logic, fuzzy clustering, natural computing, and covers basic concepts of feature selection and generalisation.

Staff: George Magoulas

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

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

Pre-requisites and co-requisites to the module

No specific module is pre- or co- requisite but knowledge of mathematical concepts (algebraic con- cepts, vector, matrix, function and graph, gradient, trigonometry concepts, statistical concepts and the notion of probability), and data structures and algorithms, as taught in a typical undergraduate degree in computer science or engineering, is essential. The module also uses Matlab programming lan- guage.

Syllabus

- ☐ Learning from data
- ☐ Feature selection and generalisation
- ☐ Supervised learning, unsupervised learning and clustering
- ☐ Fuzzy logic and fuzzy clustering
- ☐ Deep networks: architectures and learning algorithms
- ☐ Natural computing: genetic algorithms, evolutionary algorithms, swarm intelligence
- ☐ Advanced learning and evolution schemes

Reading

1. E. Alpaydin, *Introduction to Machine Learning*, MIT Press.
2. S. Marsland, *Machine Learning: an Algorithmic Perspective*, CRC Press.
3. M. Negnevitsky, *Artificial Intelligence: a Guide to Intelligent Systems*, second edition, Addison Wesley, 2004.
4. R. Rojas, *Neural Networks-A Systematic Introduction*. Available online at: http://page.mi.fu-berlin.de/rojas/neural/
5. S. Theodoridis, K. Koutroumbas, *Pattern Recognition*, Academic Press.
6. Students will be directed to online papers and Web resources on the subject.

Information and Network Security (INSEC)

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
- 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

A first course in computer 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

1. J. Schiller, *Mobile Communications*, Addison Wesley, 2003.
2. G. Roussos, *Networked RFID: Systems, Software and Services*, Springer, 2008.
3. A. La Marca and E. de Lara, *Location Systems: An Introduction to the Technology Behind Ocation Awareness*, Morgan and Claypool Publishers, 2008.

Natural Language Processing and Information Retrieval (NLP)

Aims of the Module

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

Due to the explosive growth of digital information in recent years, modern Natural Language Processing (NLP) and 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). NLP & IR research and development are one of the hottest research areas in academia as well as industry. This module will convey the basic principles of modern NLP & IR systems to students.

Staff: Dell Zhang

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

Module URL: http://www.dcs.bbk.ac.uk/~dell/teaching/ir/

Pre-requisites and co-requisites to the module

None.

Syllabus

- Boolean Retrieval
- The Term Vocabulary and Postings Lists
- Regular Expressions and Text Normalization
- Dictionaries and Tolerant Retrieval
- Edit Distance
- Index Compression
- Scoring, Term Weighting and the Vector Space Model
- Evaluation in Information Retrieval
- Probabilistic Information Retrieval
- Language Models for Information Retrieval
- Language Modeling with N-Grams
- Spelling Correction and the Noisy Channel
- Text Classification, Naive Bayes, and Sentiment Analysis
- Vector Space Classification
- Logistic Regression
- Matrix Decompositions and Latent Semantic Indexing
- Vector Semantics
- Neural Nets and Neural Language Models
- Sequence Processing with Recurrent Networks

Reading

1.   C. D. Manning, P. Raghavan and H. Schutze, *Introduction to Information Retrieval*, Cambridge University Press, 2008, ISBN 0521865719. Online edition available at: http://www-csli.stanford.edu/~hinrich/information-retrieval-book.html .

Mobile Computing and Internet of Things (MCIT)

Aims of the Module

2.   D. Jurafsky and J.H. Martin, Speech and Language Processing, 3rd ed draft. Online edition available at: https://web.stanford.edu/~jurafsky/slp3/

Research Methods (RM)

Aims of the Module

This is a short course on research methods for research in Computer Science and Information Systems. This is part of our training programme for research students and research staff. Attendance is compulsory for all first-year research students, both full-time and part-time, as well as MRes stu- dents.

Staff: DCSIS academic staff

Assessment: By the Interim MRes project report of 8000-10000 words, plus technical submissions, and a 30 minutes seminar presentation, including Q&A session. The project report has a weighting of 90% and the seminar a weighting of 10% of the final mark. A significant part of the interim report would normally be a preliminary review of the state of the art in the chosen area of research. The in- terim report and seminar should demonstrate appropriate use of methods discussed on the Research Methods module and forms the assessment for that module.

Module URL: http://www.dcs.bbk.ac.uk/research/pursuing-a-research-degree/research-methods-course/

Pre-requisites and co-requisites to the module

None.

Syllabus

- Developing a research proposal and planning your research
- Resources and tools
- Simulation
- Logic and language theory
- Basic concepts and techniques of machine learning
- Ontology and epistemology of Information Systems research
- Design and analysis of algorithms
- Computational complexity and computability

Indicative Reading

1. J. Biggam, *Succeeding with Your Master's Dissertation: A step-by-step handbook*, Open University Press, 2008.
2. Research papers and Web resources on the topics covered.

Semantic Technologies (ST)

Aims of the Module

The module introduces 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 representa- tion technologies. It provides students both with practical skills of building ontologies and querying the Web, and presents an overview of 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/st/st.html

Pre-requisites and co-requisites to the module

None

Syllabus

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

Reading

1. G. Antoniou and F. van Harmelen. *A Semantic Web Primer*. MIT Press, 2004. ISBN 0-262-01210-3
2. P. Hitzler, M. Kroetzsch and S. Rudolph. *Foundations of Semantic Web Technologies*. Chapman & Hall, 2009. ISBN 978-1420090505. Supplementary materials and slides are available here.

Module Evaluation

As part of our quality assurance process, we ask students to anonymously evaluate programmes each term by competing 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.

Course Unit Questionnaire

Birkbeck UNIVERSITY OF LONDON

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.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A
1. The workload was appropriate.	☐5	☐4	☐3	☐2	☐1	☐
2. The unit was well organised.	☐5	☐4	☐3	☐2	☐1	☐
3. The objectives of the unit were made clear.	☐5	☐4	☐3	☐2	☐1	☐
4. The unit has enabled me to meet its stated objectives.	☐5	☐4	☐3	☐2	☐1	☐
5. The pacing of the unit was good.	☐5	☐4	☐3	☐2	☐1	☐
6. The information provided on this unit (reading list, unit outline, handouts, etc.) was useful.	☐5	☐4	☐3	☐2	☐1	☐
7. The Library has the books and resources I needed for this unit.	☐5	☐4	☐3	☐2	☐1	☐
8. The computing facilities I needed for this unit were satisfactory.	☐5	☐4	☐3	☐2	☐1	☐
9. The teaching rooms for this unit were fit for their purpose.	☐5	☐4	☐3	☐2	☐1	☐
10. The unit helped me to think critically.	☐5	☐4	☐3	☐2	☐1	☐
11. I have learnt skills that I could apply elsewhere.	☐5	☐4	☐3	☐2	☐1	☐
12. The unit was intellectually challenging.	☐5	☐4	☐3	☐2	☐1	☐
13. The unit has given me a good understanding of the subject.	☐5	☐4	☐3	☐2	☐1	☐
14. The unit has developed my interest in the subject.	☐5	☐4	☐3	☐2	☐1	☐
15. The size of the class was appropriate for effective learning.	☐5	☐4	☐3	☐2	☐1	☐
16. The method(s) of assessment were appropriate to the objectives of this unit.	☐5	☐4	☐3	☐2	☐1	☐
17. Overall, I am very satisfied with this learning experience.	☐5	☐4	☐3	☐2	☐1	☐

Open-ended comments

What did you like about this unit/module?

```



```

How could this unit/module be improved?

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```

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

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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 two staff members, which counts 120 credits. Students will have submitted outline research proposals with their applications, and two staff members will have considered the outline proposal at that stage and agreed to act as supervisors when the offer of a place is made. Students develop their outline research proposal in discussion with their supervisors in the first weeks of the programme and submit an agreed research proposal as detailed below. Changes of supervisors are subject to approval by the Programme Director.

The Research Project is judged on project report of about 20,000 words (maximum 30,000 words) plus related technical submissions, and the project presentation. The presentation contributes 10% to the project mark, and the report 90%.

Students are responsible for maintaining contact with their supervisors during the project. Since notions of optimal interaction between student and supervisor differ, it is best to agree in advance what form the interaction will take. Students are entitled to expect regular exchange of emails, regular meetings and feedback on drafts of the project report, provided these are submitted to supervisors in reasonable time. If supervision does not meet the agreed criteria, the Programme Director should be contacted.

Further information on undertaking projects and preparing project reports will be distributed during the academic year and published on the MRes project module on Moodle (moodle.bbk.ac.uk).

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 as described in a project proposal form
- plan and execute a major piece of programming work appropriate to the MRes 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.

The Project Proposal

A student intending to submit a project report in a particular year must develop a project proposal and submit it for assessment together with a project proposal form by the deadline noted below.

A one-page research proposal, agreed after discussion with the two supervisors, must be submitted for approval by the examiners by the deadline specified. This proposal must be submitted to Moodle and a copy emailed to the Programme Administrator. A standard form for project proposals is avail- able on the Moodle.

The project proposal is an important part of the project module. It should:
- Identify the objectives of the project.
- Describe the problem that the project will address.
- Present background research on the problem and possible solutions.
- Identify an appropriate approach/methodology which will be followed during the project.
- Include 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.

Students may choose to involve outside organisations, such as industrial or commercial companies (large or small), hospitals, schools, charities and so on, or their full-time employer. While this kind of "real-world" project can provide valuable experience for students, they may carry a greater element of risk than "in-house" projects and need to be approached with more care. Students who prefer to work on their own project idea or an idea proposed by an external organisation should consult the College's guidance with regards to the ownership of inventions at Birkbeck (http://www.bbk.ac.uk/staff-information/intellectual-property).

Project Submissions and Deadlines

Students must submit a one-page research proposal (minimum requirement) together with the standard form for project proposals. Submission is done online using Moodle and a copy should be emailed to the Programme administrator.

Full-time and first year part-time students should submit an interim project report towards the end of the Spring term. This covers the research proposal, research plan being pursued, review of the re- search literature, and progress on work carried out so far. A significant part of the interim report would normally be a preliminary review of the state of the art in the chosen area of research. Students also give a 30-minute seminar (20-minute presentation, with 10 minutes for questions) on their pro- ject work. **The interim report and seminar should demonstrate appropriate use of methods discussed on the Research Methods module and forms the assessment for that module.**

Part-time students must submit a further progress report at the end of the first year. This consists of a progress report on work carried out so far, and plans for completion of the research project.

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

The following table summarises the deadlines:

Submission of project proposal and form	Monday 23 November 2020
Submission of interim project report	Wednesday 9 March 2021
Interim project seminars	Wednesday 18 March 2021
Submission of final project report	Monday 14 September 2021
Final project seminars	Thursday 8 October 2021
Submission of year 1 progress report	Friday 18 September 2021

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. **A copy should be emailed to the Programme Administrator by the deadline.**

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.**

Moodle will accept electronic submissions by the cut-off deadline of 30 October 2020 but a penalty applies. Details are provided in the section on Late submission of coursework and project.

The proposal and report will be submitted to a Plagiarism Detection Service.

Assessment Criteria

In all cases, the project report must contain:

- A critical survey of the research literature in the area of research undertaken by the student,
- An account of the student's own work during the project. This may consist of new theo- retical research results, or an implementation and critical evaluation of an existing research approach, or a combination of these.

To **pass** a project the markers assess whether the report meets the following criteria:

- *Background, research, and presentation of problem*: the report specifies a suitable problem, and discusses its requirements. It reviews the potential approaches and critically evaluates them.
- *Approach, design, and implementation*: The approach that the student used to address the problem or questions is described. A suitable design methodology is chosen and there is an attempt to justify it. The key stages of the approach/methodology and the implementation of the approach are explained.
- *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, algorithms or theoretical approach developed meet the specified requirements, and any problems identified.
- *Presentation of report, documentation*: The report is coherent in its style and structure. It communicates the student's contribution to the reader.
- *Any other aspect of special relevance for this project.*

For a **distinction**, a student would have to attempt a challenging project and to gain a high grade under each of the above headings. To award a distinction the markers assess the report according to the following criteria:

- *Background, research, and presentation of problem*: A problem is specified, and the potential approaches are reviewed and critically evaluated. The report clearly outlines the problem, its context and the theoretical/technical/user requirements. It demonstrates that the student clearly understands the relevant research material and leads logically to a solution of the problem.
- *Approach, design, and implementation*: The report provides a clear justification of the research approach. It discusses the various design methodologies in an authoritative way and provides a clear justification for adopting a particular one. It presents the various stages of the approach/methodology and implementation in detail and executes them to a high stan- dard.
- *Testing, results, analysis, and critical evaluation*: The solution described demonstrates real insight into the problem/research questions. There is clear and justified reflection upon the contribution and its limitations. The key results are accurately analysed and stated and their relevance is explained. The author critically assesses the results and draws relevant conclu-

sions from the study. The report should demonstrate that any software developed meets the specified requirements, and is shown to be reliable.

☐ *Presentation of report, documentation*: Complex issues are explained clearly and concisely to a specialist audience. The content of the report is well organised and structured in a way that demonstrates the links between the concepts presented. The report demonstrates that the student clearly understands the relevant research material and leads logically to a solution of the problem. The author uses various resources and cites most of the relevant sources using the appropriate consistent referencing style. The report is of professional quality, so there are very few, ideally no, typographic errors.

Work that meets some, but not all, of the criteria for distinction may be considered for a **merit**, at the discretion of the markers. 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 report independently and then meet to arrive at an agreed grade. In addition, students might 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 three main research groups in the Department: Algorithms, Software and Verification, Experimental Data Science, and Knowledge Representation and Data Management. The Birkbeck Knowledge Lab is an interdisciplinary research centre which aims to explore the ways in which digital technologies and new media will shape the future of learning and knowledge. The Birkbeck Institute for Data Analytics (BIDA) is a research centre that aims to create and develop leading-edge, cross-disciplinary research in the emerging field of data analytics exploiting data from computing and pervasive technologies, statistics, finance, business, biology, physics, medicine, healthcare, education, transport, politics, geography, archaeology, linguistics, psychology, social networks, social science, law and humanities. 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.

☐ Hubie Chen: Theoretical computer science, computational complexity, theoretical aspects of artificial intelligence, database theory, logic, constraint satisfaction.

☐ Taolue Chen: Quantitative Analysis and Synthesis of Computer Program and Systems, Logic in Computer Science, Machine Learning and Data Science, Software Engineering, Algorithms and Computational Complexity.

☐ Carsten Fuhs: SAT and SMT encodings, constraint programming, computational logic, automated termination analysis, automated complexity analysis, term rewriting, separation logic, and the application of these concepts to fully automatic program analysis tools.

☐ 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.

- George Magoulas: Data modelling and machine learning for data analytics; computational intelligence; user modelling; personalised learning environments; nature-inspired computing; deep learning and neural networks.

- Keith Mannock: Software engineering; 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.

- Alessandro Provettti: Web data extraction, network science, data science and computational social science.

- Igor Razgon: Fixed parameter algorithms, graph theory, constraint satisfaction problem.

- Felix Reidl: Algorithmic graph theory, random graph models of complex networks, structural sparsity, parameterized complexity.

- George Roussos: Social and pervasive computing, human dynamics, infrastructure services for the Internet of Things.

- Vladislav Ryzhikov: Knowledge Representation and Reasoning; Temporal and Spatial Data; Temporal Logics; Semantic Web; Description Logics; Conceptual Modelling.

- Stelios Sotiriadis: Distributed computing systems, large scale resource management, cloud computing, big data processing, internet of things.

- 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: Data management, data querying, query optimisation, active and deductive rule languages, social network analysis.

- Paul Yoo: Areas of data analytics (inc. machine learning) and next-generation cyber defence and secure systems.

- 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 4 modules and in their project. To pass a module or the project, students must obtain a mark of at least 50%.

The Research Methods module is assessed by the Interim project report of 8000-10000 words, plus technical submissions, and a 30 minutes seminar presentation, including Q&A session. The project report has a weighting of 90% and the seminar a weighting of 10% of the final mark.

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 and Deferral). 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

The project is judged on a project report of about 20,000 words (maximum 30,000 words) plus re-lated technical submissions. Details are provided in the section Project Guidelines and on the MRes project module on Moodle.

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 and Deferral

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 sample 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

BIRKBECK – UNIVERSITY OF LONDON
Mitigating Circumstances Claim Form (for academic session 2019/20)

You must submit this form at the earliest possible opportunity, and at the latest 7 days after the 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 inclu**de re levant 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/mybirkbeck/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:

Module Code	Module Title	Assessment affected (e.g. examination, first coursework, in-class test)	Coursework		Examination Date of examination
			Deadline	Date submitted	

Please complete the following information by ticking the appropriate box and completing the related columns.

Type of Original Evidence you are Submitting	Tick	Date Covered by Evidence	
		Date From	Date To
Doctor's note or other medical evidence			
Police letter or form			
Employer's letter (part -**time students only)**			
Death Certificate			
Other (*Please specify*			
Please see my approved Individual Student Support Agreement			

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 y ou may resubmit a previously

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:

Surname	First Name	ID Number (if known)

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:

....

....

....

....

....

....

....

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:

The form can be downloaded from:
http://www.bbk.ac.uk/registry/policies/documents/MitCircs.pdf

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: 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 Registry's webpage: http://www.bbk.ac.uk/student-services/exams/assessment-offences

The College also provides learning support for exams and assessments, please see: http://www.bbk.ac.uk/student-services/learning-development

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:
Worsley, P., 2002. Marx and Marxism. 2nd edn. London: Routledge.

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]

Lewin, K., 1951. Field Theory in Social Science. New York: Harper and Row.

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

Piaget, J., 1970. Piaget's theory. In: P. Smith, ed., Handbook of child psychology. 3rd edn. New York: Wiley, 1970, pp. 34-76.

[when you are referring to a journal article]

Holmqvist, M., 2003. A Dynamic Model of Intra- and Interorganizational Learning. Organization Studies, 24(1), 95-123.

[when you are referring to a webpage]

W3C, Web Accessibility Guidelines and Techniques, available online at http://www.w3.org/WAI/guid-tech.html. Last accessed 12/05/2007.

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 analy- sis 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 books 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 webpage: http://www.bbk.ac.uk/student-services/exams/assessment-offences

Award of the MRes

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. Students who have not paid their fees will not get any information about their examination results.

To be awarded the MRes, students must pass the project and the Research Methods module, and 3 further modules.

To be awarded the MRes with a mark of Merit, students must pass the project and the 4 modules and must obtain an average mark of between 60% and 69%.

To be awarded the MRes with a mark of Distinction, students must pass the project and the 4 modules and must obtain an average mark of at least 70%. Students must normally achieve a distinction mark in the project in order to be awarded a distinction.

In calculating the average mark, the module marks and project mark are weighted to reflect their credit value. Each module available on the programme has a value of 15 credits while the research project has a value of 120 credits giving a total of 180 credits for the 4 modules and the project.

Students who do not pass the project but pass all 4 modules taken may ask the Examination Board to consider the award of a Postgraduate Certificate in Advanced Computing Technologies.

For detailed College rules and regulations see
http://www.bbk.ac.uk/registry/policies
and, in particular,
http://www.bbk.ac.uk/registry/policies/documents/CAS-regs-17-18.pdf

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 will have their reassessment mark subjected to a cap of 50% for the reassessed element. The cap does not apply to the retake of a whole module, including coursework 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 MRes.

Progression to Year 2 of Part-time Study

First year part-time students must normally pass at least two modules in order to proceed to the second year of study. Students who do not achieve this usually are not able to complete their studies in two years. Instead, they have to spend at least one year as a repeating student, retaking the failed modules. Under normal circumstances, this should take place the following year and students are not allowed to take any new modules until they pass the failed modules. However, because some modules on this programme are taught in the evenings on alternate years only, we permit students in such

circumstances to enrol on two 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

Repeating students: A student who is taking only a small number of previously failed modules may enrol as a repeating student to retake those modules. Students taking new modules pay the regular fee. For repeating students, the fee payable is calculated pro-rata on the basis of the overall credit for the modules being taken up to a maximum of the full fee for the programme year.

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 revi- sion 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 a reduced fee. Note that
- a student who has to resubmit the dissertation and be reassessed for examination or course- work 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.

Regardless of when a project is submitted, it is examined only at the November meeting of the Ex- amination Board.

Deferral of assessments

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 Mitigating Circumstances and Deferral) 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 miti- gating 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 Circum- stances and Deferral). Students who withdraw from or miss an exam are usually required to enter the exam the next year.

The deferral form can be downloaded from:
http://www.bbk.ac.uk/registry/policies/documents/MitCircs.pdf

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 Services

The College provides various services to students, see: http://www.bbk.ac.uk/student-services

At Birkbeck there are students with a wide range of disabilities including dyslexia, visual or hearing impairments, mobility difficulties, mental health needs, medical conditions, respiratory conditions. Many of them have benefited from the advice and support provided by the College's Disability Office.

The Disability Office
The College has a Disability Office located in room G12 on the ground floor of the Malet Street building. We have a Disability Service Manager, Mark Pimm, a Disability Administrator, John Muya and a Mental Health Advisor, Elizabeth Hughes. We will shortly be appointing an SpLD Advisor.

All enquiries should come to the Disability office, who will determine the appropriate referral to specialist staff. They can provide advice and support on travel and parking, physical access, the Disabled Students Allowance, special equipment, personal support, examination arrangements etc. If you have a disability or dyslexia, we recommend you come to our drop in session where we can discuss support and make follow up appointments as necessary.

The Disability and Dyslexia Service:

http://www.bbk.ac.uk/student-services/disability-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.) 48
- medical conditions (e.g. HIV, CFS, diabetes, cancer, chest and respiratory conditions etc.)
- autism-spectrum conditions (autism or Aspergers syndrome)

They can provide support during your studies including

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

The Disability Office will complete an Individual Student Support Agreement form with you, confirming your support requirements and send this to your School and relevant Departments at the College so they are informed of your needs.

Access at Birkbeck
Birkbeck's main buildings have wheelchair access, accessible lifts and toilets, our reception desks have induction loops for people with hearing impairments and we have large print and tactile sign- age. Disabled parking, lockers, specialist seating in lectures and seminars and portable induction loops can all be arranged by the Disability Office.

The Disabled Students Allowance
UK and most EU students with disabilities on undergraduate and postgraduate courses are eligible to apply for the Disabled Students' Allowance (DSA). The DSA usually provides **thousands of pounds worth of support** and all the evidence shows that students who receive it are more likely to complete their courses successfully. The Disability Office can provide further information on the DSA and can assist you in applying to Student Finance England for this support.

The Personal Assistance Scheme
Some students need a personal assistant to provide support on their course, for example a note-taker, sign language interpreter, reader, personal assistant, disability mentor or dyslexia support tutor. Birkbeck uses a specialist agency to recruit Personal Assistants and they can assist you with recruiting, training and paying your personal assistant. Please contact the Disability Office for information on this scheme.

Support in your School
The provision which can be made for students with disabilities by Schools is set out in the Proce- dures for Students with Disabilities. This is available from the Disability Office and on the disability website (see below).

As mentioned above your School will receive a copy of your Individual Student Support Agreement from the Disability Office. This will make specific recommendations about the support you should receive from the School.

The Department also has a disability officer, Andrea Cali mailto:andrea@dcs.bbk.ac.uk whom students can contact.

Counselling Service
The Counselling Service

http://www.bbk.ac.uk/student-services/counselling-service

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

Mental Health Service
Many students experience mental health difficulties at some point in their time at university. Whether you have a formally diagnosed psychiatric condition or other form of mental health difficulty such as anxiety or depression, we encourage you to seek support in your studies. Birkbecks Mental Health Service http://www.bbk.ac.uk/student-services/mental-health-advisory-service is a first point of contact for students experiencing mental health issues at any stage during their studies.

Support in IT Services and Library Services
There is a comprehensive range of specialist equipment for students with disabilities in IT Services. This includes software packages for dyslexic students (e.g. Claroread and Inspiration), screen reading and character enhancing software for students with visual impairments, specialist scanning software, large monitors, ergonomic mice and keyboards, specialist orthopaedic chairs etc. For advice and assistance please contact Disability IT Support. There is also a range of specialist equipment in the Library including a CCTV reading machine for visually impaired students as well as specialist orthopaedic chairs and writing slopes. The Disability Office refers all students with disabilities to the Library Access Support service who provides a comprehensive range of services for students with disabilities.

Specific Learning Difficulties (Dyslexia)
Mature students who experienced problems at school are often unaware that these problems may result from their being dyslexic. Whilst dyslexia cannot be cured, you can learn strategies, which make studying significantly easier. If you think you may be dyslexic you should contact the Disability Of-

fice who can screen you and where appropriate refer you to an Educational Psychologist for a dyslexia assessment.

Examinations

Students with disabilities and dyslexia may be eligible for special arrangements for examinations e.g. extra time, use of a word processor, amanuensis, enlarged examination papers etc. In order to receive special arrangements a student must provide medical evidence of their disability (or an Educational Psychologists report if you are dyslexic) to the Disability Office. For main College summer examina-tions you are given the opportunity to declare that you require special provision on your assessment entry form. Students who require provision should then attend an appointment with the Disability Office to discuss and formalise the appropriate arrangements.

Further information

Full information on disability support can be found at: http://www.bbk.ac.uk/student-services

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

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 Helpdesk to have it reinstated.

ITS Helpdesk Opening Hours

Ground Floor (next to Library entrance), Malet Street Main Building
Term time: Monday to Friday   10:00am to 8:00pm

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

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 co- operation. Please renew or return items promptly, especially if someone else has requested them. If you fail to return items on time you will incur fines and your borrowing rights will be suspended. Students who have overdue items at the end of the academic year will have examination results with- held 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 research- ing, 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 bib-liographic 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 use-ful 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 Of-fice.

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 2-10 years. In exceptional circumstances, children up to 12 will be accepted. However, Nursery Staff reserve the right not to accept older children if they are disruptive. Full details, including opening times, may be found at: www.bbk.ac.uk/pers/nursery.

Business Engagement Team and Career Service

The School of Business, Economics and Informatics has a dedicated Business Engagement team where you can take advantage of extra support - in addition to what is offered by Birkbeck Talent and Birkbeck Careers. The Business Engagement team deliver a range of activities to support you in your career aspirations including:

Mentoring Pathways
Mentoring Pathways pairs successful applicants with industry professionals for individual advice and guidance. There are approximately 100 places available for final year undergraduates and postgraduate students. We have partnerships with a number of key organisations and work alongside Birkbeck alumni who provide mentors. Please email mentoring@bbk.ac.uk or visit http://www.bbk.ac.uk/business/business-services/mentoring-external for more information.

Enterprise Pathways
Whether you are setting out in your journey as an entrepreneur or have already established a thriving business, we offer various pathways to support you. These include a non-credit bearing module with workshops once a month throughout the academic year, access to digital resources, and enterprise boot camps to help you to develop your ideas and network with other students. Please email enterprise@bbk.ac.uk or visit www.bbk.ac.uk/enterprise

School Events
From time to time we run events, competitions or offer the opportunity to attend conferences, with the aim to help you to find out more about industry sectors, entrepreneurs and professional bodies.

You can also follow BEI on social media for information and conversations:

• Twitter: @BirkbeckBEI
• Facebook, Google+ and LinkedIn: Search 'BirkbeckBEI'

Please visit our website www.bbk.ac.uk/business/business-services for resources and information about all of these initiatives.

Career Development

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

The Careers Group, University of London
http://www.thecareersgroup.co.uk/
offers great expertise and experience in working with students and graduates of all ages and at all stages of career development.

The Careers and Employability Service
http://www.bbk.ac.uk/careers/careers-service
is our in-house service for enhancing career development and employability throughout your time at Birkbeck, from enrolment through to graduation. There is also Birkbeck Talent, a professional recruitment service aimed exclusively at assisting Birkbeck students to find work whilst studying and after graduation. They work with London's top employers to offer innovative internships, prestigious job vacancies and exciting graduate opportunities. To find out more please visit http://www.bbk.ac.uk/student-services/birkbeck-talent-service