

REGULATIONS FOR THE DEGREE OF BACHELOR OF COGNITIVE SCIENCE (BCogSc)

(See also General Regulations and Regulations for First Degree Curricula)

Definitions

BCo1¹ In these Regulations, and in the Syllabuses for the degree of BCogSc, unless the context otherwise requires -

‘Department’ means any department teaching in the degree programme;

‘Course’ means a course of instruction which normally carries 6 credits or in some cases 3 credits or multiples of 3, leading to one examination paper as defined in the syllabus;

‘Paper’ means one or more of the following tests: a theoretical examination paper, a practical examination paper, an assessment of field practice, a thesis, and a dissertation, or other assignments as prescribed in the syllabus of the course leading to it;

‘Credits’ means the weight assigned to each course relative to the total study load. The number of credits is indicative of the contact hours and/or study time associated with the course on a weekly basis;

‘Prerequisite’ means a course which candidates must have completed as specified to the satisfaction of the Head of Department before being permitted to take the course in question.

Admission to the degree

BCo2 To be eligible for admission to the degree of Bachelor of Cognitive Science candidates shall

- (a) comply with the General Regulations;
 - (b) comply with the Regulations for First Degree Curricula; and
 - (c) complete the curriculum in accordance with the regulations that follow.
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Length of study

BCo3 The curriculum shall normally extend over three academic years consisting of six semesters of full-time study, excluding the summer semesters. Candidates shall not in any case be permitted to complete the curriculum in more than four academic years, which being the maximum period of registration.

Completion of the curriculum

BCo4 To complete the curriculum, candidates shall:

- (a) satisfy the requirements prescribed under (a)(i), (ii), (iii) and (b) of UG3 of the Regulations for First Degree Curricula;
 - (b) enrol in not less than 180 credits of courses, unless otherwise required or permitted under the Regulations;
 - (c) follow the required number of compulsory and elective courses as prescribed in the syllabuses of the equivalent of normally 60 credits for each year of study. For each semester, candidates shall select not less than 24 or more than 36 credits of courses, except for the last semester of study; and
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¹ This regulation should be read in conjunction with UG1 of the Regulations for First Degree Curricula.

- (d) take a maximum of 66 credits of junior-level courses and the rest being senior-level courses as prescribed in the syllabuses over the entire period of studies;
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Selection of courses

BCo5 Candidates who wish to withdraw from a course at the beginning of each semester may do so up to 2 weeks after the commencement of the semester. Withdrawal beyond the 2-week deadline will not be permitted, except for medical or other reasons acceptable by the Faculty Board, and candidates withdrawal from any course without permission will be given a failed grade.

Assessment and grades

BCo6 Candidates shall be assessed for each of the courses which they have registered. The assessment may take one or a combination of forms as prescribed in the syllabuses and shall normally include the candidates' coursework during the semester. Only those satisfactorily completed courses will earn credits.

BCo7 Candidates' performance in a course shall be assessed with the grading system as prescribed in UG5 of the Regulations for First Degree Curricula.

Failure in examination

BCo8 Candidates who fail in any course may, as directed by the Board of Examiners, be permitted to present themselves for re-assessment with or without repeating the failed course. The timing and the form(s) of re-assessment shall be decided by the Board of Examiners. Candidates shall not be allowed to repeat a course for which they have achieved a passed grade for upgrading purposes, nor shall they be permitted to repeat a course more than once. The failed grade will be recorded in the official transcripts. The new grade obtained after re-assessment of the same failed course will also be recorded and will replace the previous F grade in the calculation of the weighted grade point averages. As failed courses shall not be credited towards a degree, failed compulsory courses must be re-assessed.

Absence from examination

BCo9 Candidates who are unable because of their illness to be present for any written examinations may apply for permission to present themselves for a supplementary examination to be held before the beginning of the first semester of the following academic year. Any such application shall be made on the form prescribed within two weeks of the first day of absence from any examination. Candidates who fail to satisfy the examiners in one or more papers in such a supplementary examination shall be considered under the provisions made in these Regulations for failure at the first attempt at the examination, except that a further supplementary examination shall not be permitted.

Performance assessment

BCo10 At the end of each semester, candidates' performance shall be assessed for the purposes of determining

- (a) their eligibility for progression to an award of the degree;
- (b) their eligibility for the award; or
- (c) whether they be required to be discontinued from the programme.

Progression of studies

BCo11 Candidates shall be permitted to progress if they have:

- (a) not exceeded the maximum period of registration; and
- (b) accumulated not less than 30 credits and attained a GPA of 1.00 or above over the first and second semesters; or
- (c) accumulated not less than 30 credits and attained a GPA of 1.50 or above over the third and fourth semesters; or
- (d) accumulated not less than 30 credits and attained a GPA of 1.50 or above over the fifth and sixth semesters; or
- (e) attained a semester GPA of 1.50 or above at the end of each subsequent semester.

Those who have not been able to fulfill the requirements above shall be recommended for discontinuation from the programme under General Regulation G12.

Award of the degree

BCo12 To be eligible for the award of the degree of BCogSc, candidates shall have:

- (a) achieved a weighted GPA of 1.00 or above;
 - (b) successfully accumulated a minimum of 180 credits; and
 - (c) satisfied the requirements in UG3 of the Regulations for First Degree Curricula.
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Degree classification

BCo13 A list shall be published of candidates successful in the examinations for each semester. A list of candidates who have successfully completed all the degree requirements shall be published in five divisions: First Class Honours, Second Class Honours Division One, Second Class Honours Division Two, Third Class Honours, Pass. The classification of honours shall be determined by the Board of the Faculty at its full discretion by taking the overall performance of candidates and other relevant factors into consideration.

SYLLABUSES FOR THE DEGREE OF BACHELOR OF COGNITIVE SCIENCE

1. Curriculum requirements

Regulations BCo1 to BCo4 specify the requirements with which candidates have to comply for completion of the BCogSc degree programme. For the fulfillment of Regulation UG3 "Requirements for Graduation", candidates shall complete successfully the three language studies courses as well as a 3-credit broadening course of either Science and Technology Studies or Humanities/Social Sciences Studies, depending on their Arts or Science background and the streams of courses they select.

Furthermore, they should fulfil the Information Technology requirement as stipulated under Regulation UG3 by:

- (a) taking a 3-credit course in Information Technology or
- (b) taking LING1002 or
- (c) obtaining a pass in an Information Technology proficiency test

2. Course registration

Course registration will take place before the commencement of each semester. All junior-level courses should be taken in the first or second semester except those specified in the syllabuses.

In course registration, candidates should pay special attention to the pre-requisite and co-requisite requirements of courses as specified in the syllabuses. A prerequisite is a course which candidates must have completed in accordance with the conditions stipulated by the Head of Department before being permitted to take a course in question. A co-requisite is a course which candidates must take at the same time as the course in question.

3. Coursework and examination ratio

All courses in the curriculum, except the language studies courses and the broadening courses, are of 6 credits. Unless otherwise specified, the examination for each 6-credit course consists of one two-hour written paper and the final grading will be determined by performance in the examination and an assessment of coursework in the ratio of 75:25, unless otherwise specified. For courses offered by the School of Business, the assessment ratio will be announced by teachers at the beginning of each semester.

4. Course structure

- a. In the first and second semesters, candidates should take a total of 60 credits of courses comprising the following:

COGN1001. Introduction to cognitive science	(6 credits)
CSIS0911. Computer concepts and programming <u>or</u>	(6 credits)
CSIS1117. Computer programming	
CSIS0912. Data structures and program design <u>or</u>	(6 credits)
CSIS1119. Introduction to data structures and algorithms	
LING1001. Introduction to linguistics	(6 credits)
MATH0801. Basic mathematics I <u>or</u>	(6 credits)
MATH0802. Basic mathematics II	
PHIL1002. The human mind: an introduction to philosophy	(6 credits)
PSYC1001. Introduction to psychology <u>or</u>	(6 credits)
PSYC1002. How the mind works: explorations in basic thinking processes	
ECEN1901. Academic English for social sciences students	(3 credits)
CSSC1001. Practical Chinese language course for social sciences students	(3 credits)

Candidates without a pass in Pure Mathematics at the HKALE must take CSIS0911 and CSIS0912. They must also take either MATH0801 or MATH0802 as appropriate.

Candidates with a pass in Pure Mathematics at the HKALE may choose CSIS1117 and CSIS1119.

All the other 12 to 18 credits of courses should be taken from those listed below, or from other junior-level offered by departments in the Faculties of Arts or Social Sciences subject to the permission of the department concerned and of the Programme Director.

- b. In the third and subsequent semesters, candidates should take a total of 120 credits of courses. They are required to take:

In the third and fourth semesters

Two out of the following three courses	(12 credits)
LING2001. Computational linguistics	
LING2050. Grammatical description	
LING2048. Language and cognition	
PSYC0007. Cognitive psychology	(6 credits)
PSYC0022. Biological psychology	(6 credits)

STAT2001. Statistical analysis and modelling for cognitive science	(6 credits)
ECEN2902. Professional communication for social sciences students Science and Technology Studies <u>or</u>	(3 credits)
A course from Humanities and Social Sciences studies	(3 credits)

In the third and subsequent semesters

CSIS0270. Artificial intelligence	(6 credits)
PHIL2230. Philosophy and cognitive science	(6 credits)
PHYO2001. Advanced cognitive neuroscience	(6 credits)
PSYC0008. Advanced cognitive psychology	(6 credits)
PSYC0030. Computational models of behaviour	(6 credits)

In the fifth or sixth semester

COGN3001. Thesis in cognitive science	(12 credits)
STAT3001. Problem-based statistical methods for cognitive science	(6 credits)

All other courses should be selected from the list below, or from any senior-level course offered by departments in the Faculties of Arts or Social Sciences subject to the permission of that department and of the Programme Director. Candidates are expected to stream their courses according to whether their background is in Arts or Science subjects. Advice on this will be given by the Programme Director.

JUNIOR-LEVEL COURSES

Language Studies Courses

Department of Chinese

CSSC1001. Practical Chinese language course for social sciences students (3 credits)

This course aims at enhancing students' knowledge and skills in practical Chinese writing in the social sciences. Students will be introduced to simplified Chinese characters, and will be trained to write letters, proposals, reports, press releases and announcements. They will also acquire the skills in making public speeches and presentations. The course involves extensive use of Chinese IT applications.

Assessment: 50% coursework, 50% examination.

English Centre

ECEN1901. Academic English for social sciences students (3 credits)

The course introduces students to features of speaking and writing in English in an academic context. Through small group work related to language and disciplinary issues the course develops abilities to produce clear and coherent spoken and written discourse for university study in the social sciences.

Assessment: 100% coursework.

ECEN2902. Professional communication for social sciences students (3 credits)

The course prepares students to communicate effectively and accurately and prepare themselves for workplace situations which entail the use of English. It requires students to investigate an issue relevant to their studies, improve their interview and presentation skills and write various professional documents.

Assessment: 100% coursework.

Core Courses

Department of Computer Science and Information Systems

CSIS0911. Computer concepts and programming (6 credits)

This course introduces the basic computing concepts and the art of computer programming. Major topics include: basic concepts and vocabulary of computers, techniques for the design and construction of computer programs, use of a high-level language and standard libraries to solve problems over a wide range of applications, etc. Assessment: 40% coursework, 60% examination.

Examination: One three-hour written paper.

CSIS0912. Data structures and program design (6 credits)

This course gives the appreciation of various types of data structures and algorithms that are commonly used in software development. Program design methodologies are also introduced. Major topics include: data structures of dynamic arrays, linked lists, stacks, queues and trees, algorithms of search, sorting, and recursion, object-oriented design and programming methodologies using classes, inheritance and virtual functions, containers and templates. Assessment: 40% coursework, 60% examination.

Examination: One three-hour written paper.

Prerequisite: CSIS0911.

CSIS1117. Computer programming (6 credits)

The goal of this course is for students to learn the general principles of programming, including how to design, implement, document, test, and debug programs. Assessment: 50% coursework, 50% examination.

Examination: One three-hour written paper.

CSIS1119. Introduction to data structures and algorithms (6 credits)

Arrays, linked lists, trees and graphs; stacks and queues; symbol tables; priority queues, balanced trees; sorting algorithms; complexity analysis. Assessment: 40% coursework, 60% examination.

Examination: One three-hour written paper.

Prerequisite: CSIS1117.

Department of Linguistics

LING1001. Introduction to linguistics (6 credits)

This course is an introduction to the basic topics of linguistics: speech sounds and sound patterns, word formation, sentence structure, the study of meaning and language change. It aims to show how linguists investigate their subject matter, which will include such interesting topics as children's language, animal communication compared with human language, why there are different dialects in languages, writing systems and language and the brain.

Students will learn about the general structure that underlies all language as well as the great variety of existing human languages. The course gives plenty of practice in solving problems, analysing languages, including Chinese and English, and dealing with linguistics data. Assessment: 100% coursework.

LING1002. Language.com: language in the contemporary world (3 credits)

The 21st century will be the Age of the Internet. What is the Internet all about? Essentially, it is about information and communication. Language is by far the most important means of communication and

information exchange amongst human beings. To fully appreciate our own place in the contemporary world and to make the best of the many opportunities presented by new forms of communication, we need to know more about language. This course is an introduction to language: its nature and its relationship with facets of life in the contemporary world.

- Natural Language Processing: Can computers be trained to understand and produce human language?
- Machine Translation: Can computers do translations automatically and accurately?
- Corpus Linguistics: What kinds of language data are available on the Internet? How can they be used to make grammars and dictionaries?
- Chinese Language Computing: How many kinds of Chinese inputting methods are there? Which one suits you best?
- Internet Tools: What tools are available on the Internet for the learning of languages and linguistics?
- Human-Computer Interfaces: What is “ergonomics”? What is currently being done to improve the quality of communication between people and their computers?
- Speech analysis: What computer programs are available to analyse speech signals? How can computer speech analysis help language learners?

Assessment: 100% coursework.

Department of Mathematics

MATH0801. Basic mathematics I (6 credits)

Aim/Follow-up: To provide students with a basic background of calculus that can be applied in various disciplines, aiming at students not having done much mathematics beyond HKCEE mathematics. It can be following by MATH0802/1803 or MATH1811/1812.

- Contents:
- Sets, real numbers.
 - Equations and inequalities.
 - Functions, graphs and inverses.
 - Exponential and logarithmic functions.
 - Limits and continuity.
 - Differentiation, chain rule, implicit differentiation.
 - Higher order derivatives, curve sketching, maxima and minima.
 - Definite and indefinite integrals, change of variables.

Examination: One 2½ hour written paper.

Assessment: 40% coursework, 60% examination.

Prerequisite: HKCEE Mathematics (Additional Mathematics or AS Mathematics and Statistics or Mathematics at higher level not allowed; Mathematics students (MATH, MAEF, CMOR & MAPH) are not allowed to take this course unless prior approval has been obtained from the Department for special reason)

MATH0802. Basic mathematics II (6 credits)

Aim/Follow-up: To provide students with a more solid background of calculus of one and several variables and of matrices that can be applied in various disciplines, aiming at students having taken an elementary calculus course. It can be following by MATH1803.

- Contents:
- Set and functions.
 - Limits and continuity.
 - Differentiation, application, Taylor approximation.
 - Integration, techniques, improper integrals.
 - Functions of several variables, partial differentiation.
 - Maxima and minima, Lagrange multipliers.
 - Double integrals.
 - Matrices, systems of linear equations, inverses, determinants.
 - Eigenvalues and eigenvectors.

Examination: One 2½ hour written paper.
Assessment: 40% coursework, 60% examination.
Prerequisite: Additional Mathematics or AS Mathematics and Statistics or MATH0801 or MATH0803 or MATH0805 (AL Mathematics not allowed; Mathematics students (MATH, MAEF, CMOR & MAPH) are not allowed to take this course unless prior approval has been obtained from the Department for special reason)

Department of Philosophy

The final grade of courses offered by the Department will be determined by coursework assessment only which may include in-class tests.

PHIL1002. The human mind: an introduction to philosophy (6 credits)

This course is an introduction to philosophical issues about the mind. These include metaphysical questions about what minds are, whether the mind is something non-physical or whether it is some kind of a computer. Then there are the epistemological questions about the nature and limitation of human knowledge, such as whether we can really know what other people's experiences are like, or whether there is a God.

Department of Psychology

PSYC1001. Introduction to psychology (6 credits)

Discussion of basic concepts in psychology and a preliminary survey of representative work carried out in various areas of psychological investigation, together with an investigation at some length of one such area. Assessment: 40% coursework, 60% examination.

Eligibility: Students taking or having taken PSYC1002 or PSYC1003 are not allowed to take this course.

PSYC1002. How the mind works: explorations in basic thinking processes (6 credits)

We are all fascinated by the achievements of the human mind or brain. But we may also often ask ourselves how we can do things better, for example, remember more efficiently. This course will help us to understand more about the ways in which we solve problems, how we develop our abilities to communicate through language, and how we think creatively. It will help us to answer questions about why we forget things, how we manage to see things in the world around us, why we sleep and what our dreams mean. We will look at the ways in which the human brain operates, and how it manages to do such amazing things, through reference to research findings, theories and our own practical work. Lectures will include class demonstrations and activities, as well as videos, presented in a way to enhance your interest in, and memory of, what is already a fascinating area. Assessment: 50% coursework, 50% examination.

Eligibility: Students taking or having taken PSYC1001 are not allowed to take this course.

All Departments

COGN1001. Introduction to cognitive science (6 credits)

This course allows students to gain an understanding of the workings of the mind in the context of the technological advances that are increasingly shaping our lives and our society. The course introduces students to the domain, goals and methods of Cognitive Science, showing how different disciplines converge in their enquiry into how the brain works. With integration as the overall objective, there will be a series of lectures given by specialists within each of the major disciplines (Computer Science and Information Systems, Linguistics, Philosophy, Physiology and Psychology) that contribute to Cognitive

Science. Each series of lectures will present case studies highlighting research findings which show how similar questions about the functioning of the human mind are answered from the perspective of each contributing discipline. Assessment: 40% coursework, 60% examination.

SENIOR-LEVEL COURSES

Department of Architecture

ARCH1007. Visual communications I (3 credits)

This course covers exercises in two- and three-dimensional spatial elements, i.e. dynamics of visual form; perspectives, projections and basic graphic techniques. The content of the course serves as an introduction by dealing with the clarification of certain fundamental areas of visual enquiry and to develop an awareness, inquisitiveness and a sensitive appreciation of this field. Assessment: 100% coursework.

ARCH2008. Visual communications IV (3 credits)

The course is an extension of Visual communications I dealing with fundamental areas of visual enquiry. Specialized options such as photography, pen and ink, line drawings, life and figure drawings, Chinese calligraphy and painting are offered. Assessment: 100% coursework.

School of Business

BUSI0014. Decision support systems (6 credits)

This course studies how computer systems can be used to assist managers in making effective decisions, both structured and semi-structured, through the integrated application of model base management, knowledge base management, data base management, dialogue management and problem processing systems.

Prerequisite: BUSI1003

BUSI0059. Information systems analysis and design (6 credits)

This course examines the application of information technology to business and analyses the various stages of a systems life cycle with the development of computer-based information systems. Techniques for modeling data and process requirements will be discussed.

Prerequisite: BUSI1003 or CSIS1127

Co-requisite: BUSI0048, CSIS0911 or CSIS1117

Department of Computer Science and Information Systems

CSIS0250. Design and analysis of algorithms (6 credits)

The course studies various algorithms design techniques, such as divide and conquer, and dynamic programming. These techniques are applied to design highly non-trivial algorithms from various areas of computer science. Topics include: advanced data structures; graph algorithms; searching algorithms; geometric algorithms; overview of NP-complete problems. Assessment: 50% coursework, 50% examination.

Examination: One three-hour written paper.

Prerequisite: CSIS0912 or CSIS1119.

CSIS0270. Artificial intelligence (6 credits)

AI programming languages; logic; theorem proving; searching; problem solving. Assessment: 50% coursework, 50% examination.

Examination: One three-hour written paper.

Prerequisite: CSIS0912 or CSIS1119.

CSIS0278. Introduction to database management systems (6 credits)

This course studies the principles, design, administration, and implementation of database management systems. Topics include entity-relationship model, relational model, relational algebra and calculus, database design and normalization, database query languages, indexing schemes, security, integrity, concurrency control, and contemporary topics in database management systems. Assessment: 50% coursework, 50% examination.

Examination: One three-hour written paper.

Prerequisites: CSIS0911 and CSIS0912; or CSIS1117 and CSIS1119.

Eligibility: Students taking or having taken BUSI0052 are not allowed to take this course.

CSIS0297. Introduction to software engineering (6 credits)

This course introduces the fundamental principles and methodologies of software engineering. It covers the software process and methods and tools employed in the development of modern systems. The use of CASE tools and the UML are emphasized. The course includes a team-based project in which students apply their new knowledge to a full development lifecycle, including maintenance. Assessment: 50% coursework, 50% examination.

Examination: One three-hour written paper.

Pre-requisite: CSIS0911 or CSIS1117.

Eligibility: Students taking or having taken CSIS1401 are not allowed to take this course.

CSIS0317. Computer vision (6 credits)

This course introduces the principles, mathematical models and applications of computer vision. Topics include: image processing techniques, feature extraction techniques, imaging models and camera calibration techniques, stereo vision, and motion analysis.

Assessment: 40% coursework, 60% examination.

Examination: One three-hour written paper.

Prerequisites: CSIS1117 and CSIS1119; or CSIS0912.

CSIS0322. Internet and the World Wide Web (6 credits)

Introduction and history; networks, internetworking, and network protocols; TCP/IP and related protocols; client-server model and programming; distributed applications; Domain Name System; Internet applications: TELNET, mail, FTP, etc.; Internet security; intranet and extranet; virtual private networks; World Wide Web; Web addressing; HTTP; HTML, XML, style sheets, etc.; programming the Web: CGI, Java, JavaScript, etc.; Web servers; Web security; Web searching; push technology; other topics of current interest. Assessment: 40% coursework, 60% examination.

Examination: One three-hour written paper.

Department of Linguistics**LING2001. Computational linguistics (6 credits)**

How can the computer help us analyse sentences? Can a computer really understand language? These are some of the questions explored in this course. The course will introduce basic concepts and techniques of natural language understanding and Chinese language information processing. Assessment: 100% coursework.

LING2002. Conversation analysis (6 credits)

How is it that we manage to have conversations in which lots of different people take part and everyone has a chance to speak as well as to listen? At least, most of the time we manage that all right. What rules are followed when we have conversations? On this course you will discover what these rules are and learn how to describe the structure of conversations. Assessment: 100% coursework.

LING2003. Semantics: meaning and grammar (6 credits)

This course focuses on structural and cognitive aspects of meaning which are relevant to the description and theory of grammar. Examples will be drawn from Cantonese, Mandarin and English together with some other European and Asian languages. Assessment: 100% coursework.

LING2027. Phonology: an introduction to the study of sound systems (6 credits)

The notion of the phoneme and its place in phonology; distinctive features; phonological processes and their description; rules and representations. Assessment: 100% coursework.

LING2031. Phonological theory (6 credits)

Current theories of phonology, including Autosegmental phonology, Metrical theory, Lexical phonology, Optimality theory and other models. Assessment: 100% coursework.

LING2032. Syntactic theory (6 credits)

The course explores recent theoretical approaches to syntax, focusing on generative grammar. Assessment: 100% coursework.

LING2048. Language and cognition (6 credits)

This course examines various issues regarding cognition and language. Topics to be covered are:

- How is language processed and represented in the mind and the brain?
- Commonalities and particularities of cognitive and neuro-cognitive processing of different languages (e.g., English and Chinese).
- First and second language learning. What are the critical factors that facilitate language learning?
- The Chinese language and the brain; language and reading disorders.
- Applied cognitive psychology of language. Headline designs for newspaper, TV program, and advertisement. Cognitive basis of persuasion.

Assessment: 100 % coursework.

LING2050. Grammatical description (6 credits)

This course aims at giving the students a comprehensive introduction to basic concepts used in the description of morphology and syntax, independent of any model of grammar. Exercises accompany the topics introduced. Example analyses are drawn from various languages. The following topics in morphology and syntax will be covered: words, morphemes and morphs, word classes, immediate constituents, phrase structure, functional relations, sentence structure.

Assessment: 100% coursework.

Department of Philosophy

The final grade of courses offered by the Department will be determined by coursework assessment only which may include in-class tests.

PHIL2220. The mind (6 credits)

This course will focus on some central issues in the philosophy of mind, issues which arise when we think of the relations between mind and the world. Among the issues to be discussed in the course are the following: What does having a mind enable us to do? Do non-human animals have minds? What is the relationship between mind and rationality?

PHIL2230. Philosophy and cognitive science (6 credits)

We shall look at some of the philosophical issues involved in studying minds and behaviour scientifically. We might discuss questions such as: Can we explain all mental phenomena in computational terms? What is consciousness? What is the role of language in thinking? How useful are neural networks in understanding the mind?

PHIL2240. Consciousness in Philosophy and Neuropsychology (6 credits)

Consciousness has become a huge research topic in philosophy and cognitive science in recent years. Scientists have uncovered all kinds of interesting phenomena related to consciousness, and yet there is no consensus as to what a proper theory of consciousness should look like. In this course we focus on recent studies on consciousness in neuropsychology, and consider whether consciousness correlates with particular physical events in the brain, and how the empirical studies bear upon philosophical problems about consciousness. We might also investigate the topic of self-consciousness, discussing split-brain patients and the evidence for and against self-consciousness in infants and primates.

PHIL2610. Philosophy of language (6 credits)

What is a language, and what is involved in knowing or understanding a language? In this course we will see how philosophers and linguists answer such questions as the following: What can logic tell us about the grammar of natural languages? Are human beings born with a universal grammar? What makes a word meaningful? What is the difference between what we mean and what we convey when we say something? How does a metaphor work? Can we learn something from slips of the tongue about the nature of language?

Department of Physiology**PHYO2001. Advanced cognitive neuroscience (6 credits)**

An advanced course concerning the structural & functional organisation of the human cerebral cortex and its role in cognition. Focus on recent experimental evidence from neurophysiology & other techniques aimed at elucidating the relationships between neural activity and cognitive events. Assessment: 30% coursework; 70% examination.

Department of Psychology**PSYC0007. Cognitive psychology (6 credits)**

This course covers how humans learn to deal with information from the environment. Topics include various aspects of perception, memory, concept structure and learning, and thinking. Students will be involved in conducting experiments on cognitive functioning as part of the coursework. Assessment: 40% coursework, 60% examination.

Prerequisite: PSYC1001 or PSYC1002.

PSYC0008. Advanced cognitive psychology (6 credits)

This course covers some recent approaches in the field of cognitive psychology. Topics may include the cognitive unconscious in perception and memory, conditioning versus cognitive learning in humans,

neural networks and information processing, as well as other topics reflecting the interests of the teacher.
 Assessment: 40% coursework, 60% examination.
 Prerequisites: PSYC0007.

PSYC0022. Biological psychology (6 credits)

This course provides an introduction to biological aspects of behaviour. The topics include: biological bases of behaviour, development, learning, memory, and abnormal psychology; the nervous system; processes of brain maturation; genetic influences; psychophysiology. Assessment: 40% coursework, 60% examination.
 Prerequisite: PSYC1001 or PSYC1002.

PSYC0030. Computational models of behaviour (6 credits)

As advanced course that explores some areas of psychological research where computational models can usefully be developed. Computer models that are constrained by neurobiological data can help reveal how networks of neurons subservise perception and behaviour. Detailed attention will be given to computational analysis of problems in biological sensing, motor control, and perception. Computational models of human visual perception, in particular David Marr's seminal work, will also be discussed. Assessment: 40% coursework, 60% examination.
 Prerequisite: either PSYC1001 or PSYC1002.

Department of Sociology

SOCI0042. Social research methods (6 credits)

The aims of this course are to introduce the basic principles and procedures which form the foundation of social research, to review the main types of research designs and methods of data collection used in social research, and to provide a set of criteria for analysing and evaluating the products of social research. The types of research covered will include participant observation, experimental design, survey methods and documentary analysis. Ethical and political issues in social research will also be discussed. Assessment: 25% coursework, 75% examination.

Department of Statistics & Actuarial Science

Students who have taken STAT2001 Statistical analysis and modelling for cognitive science are allowed to take further statistics courses which need STAT1001 Elementary statistical methods as a prerequisite.

STAT2001. Statistical analysis and modelling for cognitive science (6 credits)

The course is mainly related to the use of proper methods of statistical analysis for psychological study. Our concern throughout the course is with how we describe the outcome of a research study and how we use the results to draw inference from the study. In particular, we are concerned with the design of psychological research studies, with the statistical analysis of data from such studies and with the interplay between research design and the interpretation of statistical results. Contents: Introduction to psychological research, describing data, introduction to statistical inference, hypothesis testing, construction of confidence interval, χ^2 goodness-of-fit test, measuring association between variables.
 Eligibility: Available only to BCogSc students.

STAT3001. Problem-based statistical methods for cognitive science (6 credits)

This is a natural extension of STAT2001. This course will involve more advanced statistical analysis techniques followed by student presentations and group discussions focused on research methodology

and analysis issues in Cognitive Science and students' individual thesis research. Assessment: 40% coursework, 60% examination.

Prerequisite: STAT2001.

Eligibility: Available only to BCogSc students.

All departments

COGN3001. Thesis in cognitive science (12 credits)

This course comprises an independent research study or dissertation in an area of cognitive science of the candidates' choice. Assessment: 100% coursework.

COGN3002. Seminars in cognitive science (6 credits)

This course will be a tutorial-based reading course in a specialist area of cognitive science. It will include presentations and group discussion of issues and concepts within the area, providing an integrative framework for courses in cognitive science taken earlier in the programme. Assessment: 100% coursework.