REGULATIONS FOR THE DEGREE OF MASTER OF GEOGRAPHIC INFORMATION SYSTEMS (MGIS)

(See also General Regulations)

Any publication based on work approved for a higher degree should contain a reference to the effect that the work was submitted to The University of Hong Kong for the award of the degree.

Admission requirements

MGIS 1. Two categories of admissions are possible.

I. To be eligible for admission to the 16-month full-time or 24-month part-time programme leading to the degree of Master of Geographic Information Systems, candidates:

(a) shall comply with the General Regulations;
(b) shall hold
  (i) a Bachelor's degree with honours of this University; or
  (ii) another qualification of equivalent standard from this University or from another University or comparable institution accepted for this purpose; and
  (iii) shall possess relevant working experience where applicable;
(c) shall satisfy the examiners in a qualifying examination, if required.

II. To be eligible for advanced standing or admission to Year 2 of the part time programme leading to the degree of Master of Geographic Information Systems, candidates:

(a) shall hold
  (i) a Bachelor's degree with honours or another qualification of equivalent standard from this University or from another University AND a "Postgraduate Diploma in Applied GIS" in good standing from the School of Professional and Continuing Education (SPACE) of The University of Hong Kong; or
  (ii) a Bachelor's degree with honours or another qualification of equivalent standard from this University or from another University AND another postgraduate qualification of equivalent standard in related fields accepted for this purpose (such as MA in Transport Policy and Planning, MSc in Urban Planning, and MSc in Environmental Management from The University of Hong Kong); and
(b) if admitted, be required to enrol in specific core courses as directed by the Programme Coordinator.

Qualifying examination

MGIS 2.

(a) A qualifying examination may be set to test the candidates' formal academic ability or their ability to follow the courses of study prescribed. It shall consist of one or more written papers or their equivalent and may include a project report.
(b) Candidates who are required to satisfy the examiners in a qualifying examination shall not be permitted to register until they have satisfied the examiners in the examination.

Award of degree

MGIS 3. To be eligible for the award of the degree of Master of Geographic Information Systems, candidates

(a) shall comply with the General Regulations; and
(b) shall complete the curriculum and satisfy the examiners in accordance with the regulations set out below.

Length of curriculum

MGIS 4. The curriculum shall normally extend over not less than 16 months of full-time study or 24 months of part-time study with a minimum of 300 hours of prescribed work, which shall include examinations and coursework assessment in the manner as prescribed in the syllabuses. Candidates who have failed to complete the curriculum in accordance with this set of regulations within 32 consecutive months (maximum period of registration for full-time study) or four consecutive years (maximum period of registration for part-time study) may be recommended for discontinuation of studies under the provisions of General Regulation G12.

Completion of curriculum

MGIS 5. To complete the curriculum, candidates:

(a) shall follow courses of instruction and complete satisfactorily all prescribed written work;

(b) shall complete and present a satisfactory dissertation on a subject within their approved field of study; and

(c) shall satisfy the examiners in all prescribed courses and in any prescribed form of examination. The examiners may also prescribe an oral examination, if required.

Title of dissertation

MGIS 6. Subject to the provisions of Regulation MGIS 5(b)

(a) the title of the dissertation shall be submitted for approval not later than September 1 of the following year for full-time candidates and December 1 of the second year of study for part-time candidates; and

(b) both the full-time and part-time candidates shall submit a statement that the dissertation represents their own work undertaken after registration as candidates for the degree.

Examinations

MGIS 7.

(a) Candidates' performance during the years of study may be assessed through written assignments, tests, laboratory and practical work, and examinations as prescribed in the syllabuses.

(b) Where so prescribed in the syllabuses, coursework or a dissertation shall constitute part or whole of the examination for one or more courses.

(c) Where a project has been accepted in lieu of the written examination, candidates shall follow the normal courses of instruction but shall be examined by means of assessment of the project instead of a written examination. The project shall be treated for all purposes as the equivalent of one course.

(d) Examinations will be held at the end of the semester in which the courses are taken.

MGIS 8. Full-time candidates

(a) must satisfy the examiners in the examinations in all the courses taken in the first 10 months before proceeding to the remaining 6 months of the study;

(b) who have failed to satisfy the examiners at the first attempt in not more than two courses, whether by means of written examinations or coursework assessment, in the first 10 months may be permitted to present themselves for re-examination to be held before September of the following year;

(c) who have failed to satisfy the examiners in not more than 2 courses, whether by means of written examinations or coursework assessment, in the remaining 6 months of the study but have presented a satisfactory dissertation may be permitted to present themselves for re-examination in the failed course(s) within a specified period not less than 2 months nor more than 12 months after the publication of results;

(d) who have satisfied the examiners in all the courses in the remaining 6 months of the study but have presented an unsatisfactory dissertation may be permitted to revise and re-present the dissertation within a specified period of not less than 2 months and not more than 12 months after receipt of a notice that it is unsatisfactory;

(e) who have failed to satisfy the examiners in not more than 2 courses, whether by means of written examinations or coursework assessment, in the remaining 6 months of the study and have presented an unsatisfactory dissertation may be permitted to present themselves for re-examination in the failed course(s) and to revise and re-present the dissertation within a specified period of not less than 2 months nor more than 12 months after the publication of the results;

(f) who have failed to satisfy the examiners in three or more courses may be required to repeat the curriculum and re-present themselves for the examinations or to discontinue their studies.

MGIS 9. Part-time candidates

(a) who have satisfy the examiners in the examinations in all courses taken in the first academic year can proceed to the next academic year;

(b) who have failed to satisfy the examiners at the first attempt in not more than two courses, whether by means of written examinations or coursework assessment, in the first academic year may be permitted to present themselves for re-examination to be held before September of the following year;

(c) who have failed to satisfy the examiners at the first attempt in not more than 2 courses, whether by means of written examinations or coursework assessment, in the second year of study but have presented a satisfactory dissertation may be permitted to present themselves for re-examination in the failed course(s) within a specified period not less than 2 months nor more than 12 months after the publication of results;

(d) who have satisfied the examiners in all the courses in the second year but have presented an unsatisfactory dissertation may be permitted to revise and re-present the dissertation within a specified period of not less than 2 months and not more than 12 months after receipt of a notice that it is unsatisfactory;

(e) who have failed to satisfy the examiners at the first attempt in not more than 2 courses, whether by means of written examinations or coursework assessment, in the second year of study and have presented an unsatisfactory dissertation may be permitted to present themselves for re-examination in the failed course(s) and to revise and re-present the dissertation within a specified period of not less than 2 months nor more than 12 months after the publication of the results;

(f) who have failed to satisfy the examiners in three or more courses may be required to repeat the curriculum and re-present themselves for the examinations or to discontinue their studies.

Supplementary examination

MGIS 10. Candidates who are unable because of illness to be present for any written examination may apply for permission to present themselves for a supplementary examination, which shall be held at a time to be determined by the Board of Examiners of the Faculty of Social Sciences. 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 the supplementary examination shall be considered as failure at the first attempt.

Discontinuation

MGIS 11.

(a) Candidates who are not permitted to present themselves for re-examination in any course(s) in which they have failed to satisfy the examiners or to revise and re-present their dissertation within the revision period as approved by the Board of Examiners shall be deemed to have failed and shall be recommended for discontinuation under the provisions of General Regulation G12.

(b) Candidates who have failed to satisfy the examiners in a second attempt in any course(s) (other than the dissertation) may be required to discontinue their studies.

Postgraduate diploma

MGIS 12. Candidates (both full-time and part-time) who have passed 8 courses but failed in their dissertation after re-examination and at the end of the programme duration may be allowed to exit the programme with the "Postgraduate Diploma in Geographic Information Systems". Those who are allowed to take this exit path will not be re-admitted to MGIS.

Examination results

MGIS 13. A pass list of candidates who have successfully completed all the degree requirements and are to be awarded the Master of Geographic Information Systems shall be published. Candidates who have shown exceptional merit may be awarded a mark of distinction, and this mark shall be recorded in the candidates' degree certificate.

SYLLABUS FOR THE DEGREE OF MASTER OF GEOGRAPHIC INFORMATION SYSTEMS

COURSE OF STUDY

Coursework teaching conforms to the dates of semesters of the Faculty of Social Sciences. There are three sessions of two contact hours per week. Courses are assessed either by coursework, or a combination of coursework and examination. Examinations will normally be held at the end of the semester. Each candidate is required to take 4 core and 4 elective courses, plus a dissertation. The list of courses below is not final and is subject to changes and regular review.

Candidates may be granted exemption of up to two core courses in recognition of studies completed in related areas. Exemption will only be considered in special circumstances and each application for exemption will be considered on its own merit. Exempted courses should be replaced by additional elective courses to meet the degree requirements.

CORE COURSES

Core courses are compulsory unless a student can demonstrate proven ability in the subjects. Students are advised to complete the 4 core courses in Year 1 of their study. Unless otherwise stated, all courses are 60% coursework and 40% examination.

GEOG7200. Fundamentals of geographic information systems

Established on the convergence of a multitude of disciplines and sciences (including land surveying, cartography, computer science, geography, photogrammetry, and remote sensing), the Geographic Information System is one that requires extra effort to master. This course gives an overview of the fundamental concepts and principles of the Geographic Information System, with highlights on its capabilities, applications, and trend of development.

GEOG7201. GIS data processing

Data quality determines the integrity of an application using GIS and related technologies. Data automation and processing have become a critical part in the study of Geographic Information Systems. Data model and structure, projection and reference, data preparation and conversion, resolution and accuracy, and macro programming are covered in the course.

GEOG7202. Analyzing GIS data

Space is a principal consideration, either implicit or explicit, in many decision-making processes. A map is an efficient communication channel as it can convey much information beyond the language medium. The capability to relate information of diverse sources to their geographical location thus distinguishes GIS from other information technology. This course focuses on how to make use of the powerful spatial analytical and mapping functions of GIS in finding solutions to our problems.

GEOG7203. Programming for GIS

Computer programs form an integral part of a Geographic Information System. The increasingly open architecture of contemporary GIS programs allows greater flexibility, efficiency and effectiveness in their use through customized applications. Acquiring programming proficiency therefore is essential to keep pace with the fledged development of the science in this Internet era. (100% coursework)

DISSERTATION

Each MGIS candidate is required to complete a topical study or research project as partial fulfillment of the MGIS degree. The dissertation carries a weight approximately equivalent to two courses. Successful dissertations to be lodged in the Library shall be subject to the correction of typographical, grammatical and/or other errors as determined by the examiners.

GEOG7230. MGIS dissertation

The course includes two parts: (i) a topical study, and (ii) oral presentation. A topical study or research project must be completed in the form of a dissertation of 10,000 - 20,000 words, with a focus on GIS in an applied setting (such as planning, environmental protection and management, transport, housing, civil engineering, or architecture). The choice of topics may vary from year to year in response to demand and student composition. Each student is also required in Year 2 of their study to present their research project proposal in the “Dissertation Seminars”. (100% coursework)
The date for submitting the dissertation would be announced in the first year of study (for 16-month full-time candidates) or at the start of the final year of study (for 2-year part-time candidates).

ELECTIVE COURSES

Each candidate is required throughout the two-year (part-time) or 16-month (full-time) programme to take 4 courses from the following 3 groups of elective courses, subject to the approval of the Programme Coordinator and availability of courses. Unless otherwise stated, all courses are 60% coursework and 40% examination.

(A) ADVANCED GIS

GEOG7210. Photogrammetry and remote sensing

Remotely sensed data represent one form of reliable and economical source for timely information collection and update, especially in areas with as rigorous development as in Hong Kong. Data useful for land development planning, for instance, can be derived from aerial photographs and satellite images to facilitate further analysis. This course covers the techniques required for the capture, processing and analysis from aerial photos and satellite images by integrating photogrammetry and remote sensing with GIS technologies.

GEOG7211. Digital terrain modelling

The incorporation of terrain analysis functions in GIS adds new perspectives to local engineering and planning professionals where slope safety has always been a major concern given the hilly terrain of the Territory. This course gives an overview of the Digital Terrain Modelling techniques with an emphasis on their applications in the engineering and planning fields.

GEOG7212. Cartographic presentation and visualization

Maps have been used for centuries to describe spatial patterns and portray association and correlation. Recent developments in digital spatial data handling have changed the environment where maps are used. Maps are no longer confined to the printed format. The lectures will cover fundamental concepts underlying different mapping/analytical techniques, their strengths, limitations, and application settings. The practicals will be devoted to imparting essential computer operating and map composition skills to visualize spatial data.

GEOG7213. Topics in database systems

Non-spatial data (such as race or income) may be joined to geocoded files with matching attributes and displayed as regular maps. This is common in geographic information processing. Non-spatial data are stored in database systems (such as IBM DB2, IBM Informix, Microsoft SQL Server, and Oracle) for selective retrieval, query, and manipulation. This course introduces the database concept and focuses on middle management concerns of multi-user and integrated systems for GIS processing. (50% coursework; 50% examination)

GEOG7214. Spatial and geostatistical data analysis

This course gives an introduction to the theory and practice of geostatistics in the context of environmental mapping and modelling with GIS. Geostatistical techniques bridge the gap between statistics and GIS. In environmental applications, geographic samples of soil, water or air are often interpolated to create continuous/statistical surfaces. The process of sampling and mapping of natural phenomena is often complicated by complex spatio-temporal variations. Geostatistics offer scientifically sound methods for describing such complex patterns and examining spatial variability based upon spatial statistical theories. They can assist in determining appropriate field sampling schemes and the optimal interpolation of sample data to areas or maps. Students will undertake a variety of hands-on assignments including data representation, spatial modelling, error assessment, and interpretation of results.

(B) APPLICATIONS

GEOG7220. Environmental mapping and risk assessment

The integration of digital terrain modelling with spatial and statistical analysis makes GIS a powerful tool for environmental mapping and risk assessment. Landslide, for example, has been a widespread phenomenon in Hong Kong that hampers development into hilly regions prone to frequent landslide occurrences. The ability to map areas that are more risky than others is therefore important in hazard mitigation as well as land development planning.

GEOG7221. Internet GIS

The advent of GIS based upon client/server systems for operation over the Internet and/or Intranet has created new needs and opportunities for geographic analysis and research. Spatial information exchange and distribution will be made much easier with the widespread use of the Internet. This course focuses on the essentials of developing client/server GIS applications on the Internet.

GEOG7222. GIS in transport planning and management

A theoretical framework and the various aspects (economic, social, ecological, and behavioural) of transportation systems are essential to put transportation issues in a societal context. This course introduces the spatial structures and developments of transport systems and the ways they are examined. It covers analytical tools and major techniques used in transportation field concerning spatial arrangements and impacts.

GEOG7223. GIS project management

Managing a GIS project requires expertise in data organization, systems configuration, institutional support, and skilled personnel. This course presents the above aspects in various project development phases. Topics include needs assessment, organizational and institutional issues, building staff competency, working with vendors and consultants, project management and scheduling tools, budgeting, and planning. An overview of typical GIS programs is presented, and each component (hardware/software, data conversion/creation, training, maintenance, standards, etc.) is discussed in terms of the manager's role in building a successful system. Both successful and failed case studies will be used to impart the essentials of managing a GIS project. (100% coursework)

GEOG7224. GIS workshop or internship

Special GIS workshop or training lasting at least 3 weeks in duration may be offered from recognized institutions overseas. Interested students may participate in these workshops subject to prior approval of the Programme Coordinator. The students will also bear the associated costs of travel, training, and miscellaneous expenses. (100% coursework)

GEOG7225. GIS in health studies

The idea of applying GIS techniques in health-related studies is no longer new. Indeed, GIS has been used for more than a decade in the western countries and a flooding of applications in the health care sector reflects its significance. This course discusses how a GIS is used to address and analyze pressing health problems from the geographical perspective. It covers such topics as theoretical and practical issues, simple disease mapping, disease pattern analysis, and spatial modeling techniques. The course will be conducted in a series of lectures and hands-on practices in a problem-based learning environment.

(C) RELATED SUBJECTS
(CANDIDATES CAN SELECT NOT MORE THAN ONE COURSE FROM THIS GROUP OF COURSES. SELECTION OF COURSES FROM THIS GROUP MAY ENTAIL ADDITIONAL COURSE FEE TO BE BORNE BY THE CANDIDATES.)

GEOG7001. Survey and data analysis in transport studies

Surveys are commonly used to collect useful data in transport studies. A myriad of survey methods and instruments are available. This course covers the major aspects including survey design, sampling, hypothesis testing, interview and questionnaire design, survey implementation and administration, computer-based data processing, analysis and retrieval and report writing. Different aspects of surveys are discussed with reference to the transport-related professions and disciplines in different political and socio-economic contexts. Examples include travel characteristics, origin-destination, freight and public transport surveys conducted in Hong Kong and the other parts of the world. The applications of geographic information system (GIS) in transport studies are also covered. (100% coursework)

GEOG7009. Transport logistics planning and services management

Logistics has to do with the inbound and outbound of freight and passengers and the corresponding areas of inventory management, warehousing, packaging and information system. This course introduces and applies management techniques to supply chain management in a global setting and in the context of public policy and corporate operations. It introduces principles and approaches, leading to student knowledge and experience in management decision making applied to business logistics. It uses readings, lectures, presentations, group work, and cases, using a largely qualitative approach. Topics include the management process, management decision making, supply chain management, information systems, logistics networks and channels, risk management in global operations, performance measurement, total quality management, public policy issues in logistics, and corporate structures and approaches. (100% coursework)