

UNIVERSITY FACULTY SENATE FORMS

GRD0286

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: Li Liao phone number 302-831-3500

Department: Computer and Information Sciences email address liliao@udel.edu

Date: 9 November 2012

Action: revise graduate program

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term 13F
(use format 04F, 05W)

Current degree CIS
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: MS
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: _____
Proposed new name for revised or new major / minor / concentration / academic unit (if applicable)

Revising or Deleting:

Undergraduate major / Concentration: _____
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: _____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: _____
(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: _____
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: _____

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

None.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter "None")

None.

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

This revision consists of two components: 1) revision of the Master Degree Requirements regarding the breadth course requirements, and 2) revision of Admission Requirements regarding GRE scores and TOEFL/IELTS scores. The rationale for these changes is given as follows.

- 1) For the breadth course requirements, the main change is to add one new area **Information** to reflect the changes in the discipline towards analyzing and managing "big data", which are being generated in increasing amount from various fields including biological, medical, and social media, and may appear in heterogeneous formats including sequences, texts and graphics. Five courses are included in this area. The remaining three areas **Systems**, **Software**, and **Theory** remain the same in the requirements with only minor adjustments to better align the courses and the discipline areas they represent. Specifically, Compiler Construction (CISC672) is moved from the Software area to the Systems area, and Software Engineering (CISC675) is added to the Software area. The rules remain the same regarding the number of courses to choose and what grade is needed to satisfy the requirement.
- 2) The new GRE requirements correspond to about 60% rank which is our department's expectation of incoming students. We accept IELTS scores in place of TOEFL to be consistent with the university graduate office's policy.

Note that only the affected sections in the catalog are listed below in their original headings and numberings as appeared in the current catalog.

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

Requirements for MS Degree

NEW:

B. Computer Science Course Requirements

Breadth requirement courses:

Area 1: Theory

CISC601: Elements of the Theory of Computation

CISC604: Logic in Computer Science
CISC621: Algorithm Design and Analysis

Area 2: Systems and Networks

CISC650: Computer Networks II
CISC662: Computer Systems: Architecture
CISC663: Operating Systems
CISC672: Compiler Construction

Area 3: Software

CISC640: Computer Graphics
CISC675: Object Oriented Software Engineering
CISC681: Artificial Intelligence

Area 4: Information

CISC636: Bioinformatics
Either Machine Learning or CISC683: Introduction to Data Mining
CISC637: Database Systems
CISC642: Introduction to Computer Vision

1. All students must take four breadth courses, one in each of the four areas.
2. All students must take a graduate course in either algorithm design and analysis (e.g., CISC 621) or in theory of computation (e.g., CISC 601).
3. A grade of B- or better is required in each of the four breadth courses taken to meet the breadth requirement.
4. Substitutions or satisfaction through courses taken at another university are permitted, but require written approval by the Graduate Program Committee.

OLD:

B. Computer Science Course Requirements

Breadth requirement courses:

Area 1: Systems

CISC650: Computer Networks
CISC662: Computer Systems: Architecture
CISC663: Operating Systems

Area 2: Software

CISC640: Computer Graphics
CISC672: Advanced Compiler Construction
CISC681: Artificial Intelligence

Area 3: Theory

CISC601: Elements of the Theory of Computation
CISC604: Logic
CISC621: Algorithm Design and Analysis

1. All students must take a graduate course in either algorithm design and analysis (e.g., CISC 621) or in theory of computation (e.g., CISC 601).
2. All students must take four breadth courses, one in each of the four areas.
3. A grade of B- or better is required in each of the four breadth courses taken to meet the breadth requirement.
4. Substitutions or satisfaction through courses taken at another university are permitted, but require written approval by the Graduate Committee.

Admission Requirements:

New

- 2. Minimum scores of 153, 155, 4.0 (if taken prior to 08/01/11 then 500, 700 and 4.0) on the verbal, quantitative, and analytical writing sections, respectively, of the Graduate Record Examination Aptitude Test. The GRE subject test is not required.

- 6. For applicants whose first language is not English, and who have not received a degree at a U.S. college or university, a minimum score of 79 on the TOEFL (Test of English as a Foreign Language) or 6.5 on the IELTS (International English Language Testing System) is required for admission. A minimum score of 100 on the TOEFL or 7.5 on the IELTS is required to be considered for financial aid in the form of a teaching assistantship.

Old

- 4. Minimum scores of 550, 650 and 4.0 on the verbal, quantitative, and analytical writing sections, respectively, of the Graduate Record Examination Aptitude Test. The GRE subject test is not required.

- 6. For applicants whose first language is not English, and who have not received a degree at a U.S. college or university, a TOEFL score of 79 or better on the Internet test, or 213 or better on the computer test, or 550 or better on the old paper test, is required by the University for admission without financial aid. For applicants who seek a teaching assistantship appointment, a TOEFL score of 100 or better on the Internet test, or 250 or better on the computer test, or 600 or better on the old paper test is required. In addition, for applicants who have not graduated from an institution whose principal language of instruction is English, the Test of Spoken English is highly recommended.

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)

Department Chairperson _____ Date _____

Dean of College _____ Date _____

Chairperson, College Curriculum Committee _____ Date _____

Chairperson, Senate Com. on UG or GR Studies _____ Date _____

Chairperson, Senate Coordinating Com. _____ Date _____

Secretary, Faculty Senate _____ Date _____

Date of Senate Resolution _____ Date to be Effective _____

Registrar _____ Program Code _____ Date _____

Vice Provost for Academic Affairs & International Programs _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____