

## Brief Summary on MS Comprehensive Examination

For an MS exam, a student should register one credit of GGS 700. Details could be found at [http://cos.gmu.edu/ggs/wp-content/uploads/sites/5/2017/02/GGS\\_700\\_Guidelines.pdf](http://cos.gmu.edu/ggs/wp-content/uploads/sites/5/2017/02/GGS_700_Guidelines.pdf) (or in this package). The guide was written for MS GECA but the description is valid for all GGS MS programs. To register GGS 700, the student needs to fill an individual section form

Individualized Section: <https://science.gmu.edu/sites/default/files/2020-02/IS.pdf>  
The instructor should be your committee chair.

Other than that, three forms are involved for the student to complete the exam and the involved paperwork:

1. Before taking the exam, an exam committee should be formed by filing the Masters Comprehensive Examination Committee Form (available at: <https://science.gmu.edu/academics/departments-units/geography-geoinformation-science/advising-and-student-resources/forms> or this package). The form should be signed by the GGS Graduate Coordinator before the exam being taken.
2. The exam contents/style/policy are determined by the committee. The student should work with their committee on details, and take the exam under the supervision of the committee chair.
3. The exam committee chair should file the Masters Examination Result Recording Form (available at: <https://science.gmu.edu/academics/departments-units/geography-geoinformation-science/advising-and-student-resources/forms> or in this package) on behalf of the committee. The student should fill the personal information on the form and send the form to the committee chair for the evaluation part and signatures.
4. After passing an exam, the student should file the university's MASTER'S NON-COURSE REQUIREMENTS form (available at: <http://registrar.gmu.edu/wp-content/uploads/MNCR.pdf> or in this package). The GGS Graduate Coordinator will sign the form only after receiving the signed Masters Examination Result Recording Form with the required evaluation.

Notes:

- a) All filled forms should be submitted to GGS academic office via [ggs@gmu.edu](mailto:ggs@gmu.edu).
- b) GGS 700 will be handled by the instructor and it is expected that the grade is consistent with the evaluation rating.

## **Guidelines for GGS 700 MS-GECA Comprehensive Examination**

GMU Catalog Entry: [http://catalog.gmu.edu/preview\\_course\\_nopop.php?catoid=29&coid=308608](http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=308608)

The Comprehensive Examination (GGS 700) is a non-thesis completion option for the Master of Science Degree in Geographic and Cartographic Sciences. GGS 700 is a formal, graded 1-credit hour course that must be taken during the student's final academic term, simultaneous with completion of the degree coursework. In order to successfully complete GGS 700, the student and his/her advisor must plan carefully to meet several deadlines, which will be enforced by the Degree Coordinator and Department Chair. Failure to comply with the following requirements, deadlines, and guidelines is grounds for withholding of approval for completion of this course.

The following general requirements, deadlines, and guidelines must be adhered to:

- 1) The students must have their 4 MS-GECA core courses finished and at least 18 credit hours of elective courses for a total 30 credit hours, or, the students must be in their final academic term. Nine credit hours of elective coursework may be completed simultaneous with GGS 700 during the student's final term.
- 2) During the first four weeks of the academic term, the student must complete the [MS-GECA Comprehensive Examination Recording Form](#) and return it to the Degree Coordinator for approval. The form must contain the following required elements:
  - The student must select and nominate an Examination Committee, with one committee member serving as the Committee Chair. The Examination Committee must be full-time faculty and members of the GMU Graduate Faculty.
  - The Examination Committee and student select a 72-hour examination period, which must begin before the end of the university-designated semester midterm.
- 3) The Examination Committee will prepare the student for the exam by identifying disciplinary themes and topics for the exam, as well as scholarly resources to be reviewed by the student.
- 4) The Examination Committee will prepare examination questions and assesses the student's preparation prior to the specified examination date.
- 5) Following the student's completion of the comprehensive exam, the Examination Committee evaluates the exam and returns feedback to the student within 10 days.
- 6) The Committee determines whether an optional oral examination is needed. The oral examination is to be used if verbal clarification and discussion of responses are needed. This should not substitute for written examination revisions. An oral examination must be completed within 10 days of the end of the Examination Committee's evaluation period.
- 7) Once the examination process is complete, the committee provides written notification of an exam result to the student and to the Degree Coordinator, who completes the Exam Recording Form and submits it to the Department Chair for review.
- 8) The possible exam results are PASS, CONDITIONAL PASS, and FAIL. The following learning outcomes and examination grading rubric should be used to evaluate the student's performance and assign an exam result and final course letter grade.

## Learning Outcomes

The MS-GECA degree is a graduate science program with a number of expected learning outcomes consistent with course requirements and content. At the time of examination, students should have an understanding and mastery of the following topics; however, the exam may cover only a portion of the learning outcomes. The student should have:

- 1) An ability to identify and articulate elements of geographic problems and their solutions, including basic elements of data collection, geospatial methodology, and the testing of hypotheses related to geographic problems.
- 2) Competency with geographic information systems (GIS), including knowledge of industry-leading software and its use in addressing and answering geographic problems.
- 3) Competency with remote sensing and scientific approaches for earth observation, including software, models, algorithms, and data, and the use of remote sensing in addressing and answering geographic problems.
- 4) An understanding of human geography, physical geography, the modes of geographical thought, as well as common methods of geographic inquiry.
- 5) Competency with inferential and descriptive statistical procedures and analysis, including geographical extensions of standard quantitative methods of analysis.
- 6) A knowledge of and competency with cartographic conventions, best practices, and standards for displaying geospatial information in graphical form.
- 7) An ability to communicate scientific concepts in written form, and research methods that support written scientific communication.

## Examination Outcomes

**PASS:** No revisions are required. The student demonstrates complete mastery of content in learning outcomes, and presents the exam responses without any major or minor errors in content, omission, or analysis. The student provides complete support for responses, uses appropriate analysis in obtaining results, and presents visual material according to best cartographic practices. The exam result indicates that the student has met the highest possible standard and there are no identifiable deficiencies of any kind, even minor. The student is awarded an **A+ / A** for a final course grade.

**CONDITIONAL PASS:** The student answers examination questions with some deficiencies in written form, content, analysis, and cartographic methods. These deficiencies may be very minor, or may be major. The Examination Committee determines that the student is capable of revising responses to address deficiencies, and has some likelihood of improvement. The revision process and final evaluation determines the grade earned. The following grading rubric should be used in conjunction with the learning outcomes to address mastery and expectations of performance:

**A:** Revisions address all the deficiencies in written form, analysis, documentation, and cartographic practice. The revised exam responses demonstrate high-level mastery of the content and exam material with no errors in the revised responses. The student has achieved a comprehensive attainment of the relevant learning outcomes.

**A- / B+:** Revisions have addressed most of the deficiencies in written form, analysis, documentation, and cartographic practice. The exam responses are now adequate and represent competency and near-mastery of the examination material and attainment of relevant learning outcomes.

**B/B-:** Revisions have partially addressed the deficiencies in written form, analysis, documentation, and cartographic practice. While errors remain, the exam responses show basic competency with the examination material and basic attainment of relevant learning outcomes.

**C:** Revisions have addressed the examination deficiencies in a minor way, but errors remain in written form, analysis, documentation, methodology, and cartographic practice. The student demonstrates a low competency with the examination material and requires substantial improvement to demonstrate attainment of relevant MS-GECA learning outcomes.

**FAIL:** The student shows a substantial lack of familiarity with the basic examination topics and expected master's-level competency with analysis, methodology, and written communication. The student shows a lack of attainment of any learning outcomes. Further revisions to the exam are unlikely to result in improvement. The student receives a failing grade (**F**). The GGS 700 course may be repeated once with the permission of the Degree Coordinator and Department Chair, during the next academic term.