



Missouri State University Curricular Proposal Program Change or Deletion

Department Geography, Geology and Planning Date March 3, 2015

Title of Program Affected B.S., Geology (Comprehensive)

Type of Program: Major Comprehensive Major Option Minor Certificate Certification
Academic Rules Other

Revised Catalog Description (cut and paste present description from online catalog, strikethrough all deletions, and insert and bold new information)

See Attachment A

Complete New Catalog Description

See Attachment B

Total Hours 79-87 hours (no change from current requirement)

What is changing? Check all boxes that apply.

- Title change
- Course changes of under 18 hours
- Course changes of 18 hours or more
- From option to program (major)
- From program (major) to option
- Program or option deletion
- Other _____

Reason for Proposed Change

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add a new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major.

To offset the credit hours in the major required by this new course, we are removing the portion of GLG 333 previously devoted to sedimentary petrology (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 333 from 4 to 3. Likewise, we are removing the portion of GLG 570 previously devoted to classical stratigraphy (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 570 from 4 to 3 as well. We are also reducing the required major elective hours in our Comprehensive B.S. program from 9 to 8.

The change to the wording of the MTH requirement is intended just for clarity. What we have always intended for the math requirement for this degree program is "pass a Calc I class and pass a Calc II class." The proposed change in wording is intended to make it easier to list that requirement clearly in the Degree Audit program.

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty Senate. Forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the program needs to go through more than one committee/council, forward one additional form for each additional council/ committee marked.

- College Council (Send all undergraduate program changes through College Council as first step before forwarding either to PEC, CGEIP, or directly to Faculty Senate)
- Professional Education Committee (Considers all program changes affecting BS and MS in Education and Educational Specialist degrees)
- Committee on General Education and Intercollegiate Programs (Considers all general education and multi-college program changes)
- Graduate Council (Considers all graduate-level program changes)

Signature
Department Head

Date 3/3/2015

(Routing on Reverse Side)

①

Attachment A -- Revised Catalog Description

(deletions in strike-through; additions in bold)

Geology (Comprehensive)

Bachelor of Science

This degree program is designed for those who wish to seek admission to graduate school in geology or related fields.

- A. General Education Requirements - see General Education Program and Requirements section of catalog.
- B. Major Requirements (79-87 hours)
 - 1. GLG 110(4) or both GLG 171(3) and GLG 172(1); GLG 314(4), 332(4), 333(4 **3**), **334(3)**, 340(4), 358(3), 412(4), 413(6) or equivalent Field Geology course, 570(4 **3**)
 - 2. GLG 415(4) or 580(3) or GRY 348(3)
 - 3. GLG 572(3) or 573(3) or 590(3)
 - 4. Select a minimum of **9 8** additional hours of GLG courses numbered 318 or higher, but not to include more than 4 hours of GLG 360
 - 5. Related Requirements (27-33 hours): GRY 363(4); CHM 160(4), 161(1), 170(3), 171(1); ~~MTH 261(5) and 280(5), or MTH 287(3) and 288(3);~~ **MTH 261(5) or 287(3); MTH 280(5) or 288(3);** PHY 123(4) and 124(4), or PHY 203(5) and 204(5)
 - 6. Public Affairs Capstone Experience will be fulfilled by completion of GLG 358(3).
- C. General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog.

Attachment B – Complete New Catalog Description

Geology (Comprehensive)

Bachelor of Science

This degree program is designed for those who wish to seek admission to graduate school in geology or related fields.

- A. General Education Requirements - see General Education Program and Requirements section of catalog.
- B. Major Requirements (79-87 hours)
 - 1. GLG 110(4) or both GLG 171(3) and GLG 172(1); GLG 314(4), 332(4), 333(3), 334(3), 340(4), 358(3), 412(4), 413(6) or equivalent Field Geology course, 570(3)
 - 2. GLG 415(4) or 580(3) or GRY 348(3)
 - 3. GLG 572(3) or 573(3) or 590(3)
 - 4. Select a minimum of 8 additional hours of GLG courses numbered 318 or higher, but not to include more than 4 hours of GLG 360
 - 5. Related Requirements (27-33 hours): GRY 363(4); CHM 160(4), 161(1), 170(3), 171(1); MTH 261(5) or 287(3); MTH 280(5) or 288(3); PHY 123(4) and 124(4), or PHY 203(5) and 204(5)
 - 6. Public Affairs Capstone Experience will be fulfilled by completion of GLG 358(3).
- C. General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog.



Missouri State University
Curricular Proposal Program Change or Deletion

Department Geography, Geology and Planning Date March 3, 2015

Title of Program Affected B.S., Geology (Non-Comprehensive)

Type of Program: Major Comprehensive Major Option Minor Certificate Certification
Academic Rules Other

Revised Catalog Description (cut and paste present description from online catalog, strikethrough all deletions, and insert and bold new information)

See Attachment A

Complete New Catalog Description

See Attachment B

Total Hours 49-54 hours (no change from current requirement)

What is changing? Check all boxes that apply.

- Title change
- Course changes of under 18 hours
- Course changes of 18 hours or more
- From option to program (major)
- From program (major) to option
- Program or option deletion
- Other _____

Reason for Proposed Change

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add a new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major.

To offset the credit hours in the major required by this new course, we are removing the portion of GLG 333 previously devoted to sedimentary petrology (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 333 from 4 to 3. Likewise, we are removing the portion of GLG 570 previously devoted to classical stratigraphy (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 570 from 4 to 3 as well. We are also reducing the required major elective hours in our Non-Comprehensive B.S. program from 7 to 6.

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty Senate. Forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the program needs to go through more than one committee/council, forward one additional form for each additional council/ committee marked.

- College Council (Send all undergraduate program changes through College Council as first step before forwarding either to PEC, CGEIP, or directly to Faculty Senate)
- Professional Education Committee (Considers all program changes affecting BS and MS in Education and Educational Specialist degrees)
- Committee on General Education and Intercollegiate Programs (Considers all general education and multi-college program changes)
- Graduate Council (Considers all graduate-level program changes)

Signature
Department Head

(Routing on Reverse Side)

Date 3/3/2015

2

Attachment A -- Revised Catalog Description

(deletions in strike-through; additions in bold)

Geology (Non-Comprehensive)

Bachelor of Science

- A. General Education Requirements - see General Education Program and Requirements section of catalog
- B. Major Requirements (49-54 hours)
 - 1. GLG 110(4) or both GLG 171(3) and GLG 172(1); GLG 314(4), 332(4), 333(4 **3**), **334(3)**, 340(4), 358(3), 570(4 **3**)
 - 2. GLG 412(4) or 413(6) or equivalent Field Geology course
 - 3. CHM 160(4)
 - 4. MTH 138(5) or 181(3)
 - 5. GRY 363(4)
 - 6. Complete ~~7~~ **6** hours selected from:
 - a. CHM 161(1), 170(3), 171(1)
 - b. GLG courses numbered 318 or higher, but not to include more than 4 hours of GLG 360
 - c. GRY 348(3)
 - 7. Public Affairs Capstone Experience will be fulfilled by completion of GLG 358(3).
- C. Minor Required (or second major). Geology majors wishing to emphasize paleontology should minor in biology.
- D. General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog

Attachment B – Complete New Catalog Description

Geology (Non-Comprehensive)

Bachelor of Science

- A. General Education Requirements - see General Education Program and Requirements section of catalog
- B. Major Requirements (49-54 hours)
 - 1. GLG 110(4) or both GLG 171(3) and GLG 172(1); GLG 314(4), 332(4), 333(3), 334(3), 340(4), 358(3), 570(3)
 - 2. GLG 412(4) or 413(6) or equivalent Field Geology course
 - 3. CHM 160(4)
 - 4. MTH 138(5) or 181(3)
 - 5. GRY 363(4)
 - 6. Complete 6 hours selected from:
 - a. CHM 161(1), 170(3), 171(1)
 - b. GLG courses numbered 318 or higher, but not to include more than 4 hours of GLG 360
 - c. GRY 348(3)
 - 7. Public Affairs Capstone Experience will be fulfilled by completion of GLG 358(3).
- C. Minor Required (or second major). Geology majors wishing to emphasize paleontology should minor in biology.
- D. General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog

3

**Missouri State University
Curricular Proposal Program Change or Deletion**

Department Geography, Geology and Planning Date March 3, 2015

Title of Program Affected Master of Science, Geospatial Sciences in Geography and Geology

Type of Program: Major Comprehensive Major Option Minor Certificate Certification
 Academic Rules Other (M.S. program)

Revised Catalog Description (cut and paste present description from online catalog, strikethrough all deletions, and insert and bold new information)

See Attachment A

Complete New Catalog Description

See Attachment B

Total Hours 33 hrs with thesis; 36 hrs for the non-thesis option (no change from current requirement)

What is changing? Check all boxes that apply.

- Title change From option to program (major) Other _____
- Course changes of under 18 hours From program (major) to option
- Course changes of 18 hours or more Program or option deletion

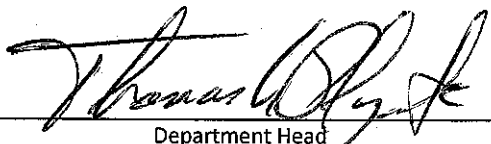
Reason for Proposed Change

Change to program title: To make clear to all departmental faculty and all prospective graduate students that all academic disciplines represented within the department are also available as options for graduate study in the department's graduate program.

Additional courses in "one of the following" list in the core and in the "Physical Geography" and "Geology" research concentrations: To increase flexibility for students in the program and to increase attractiveness of program to a wider audience of prospective students.

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty Senate. Forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the program needs to go through more than one committee/council, forward one additional form for each additional council/ committee marked.

- College Council** (Send all undergraduate program changes through College Council as first step before forwarding either to PEC, CGEIP, or directly to Faculty Senate)
*For information only
- Professional Education Committee** (Considers all program changes affecting BS and MS in Education and Educational Specialist degrees)
- Committee on General Education and Intercollegiate Programs** (Considers all general education and multi-college program changes)
- Graduate Council** (Considers all graduate-level program changes)

Signature 
 Department Head

Date 3/3/2015

(Routing on Reverse Side)

**Attachment A -- Revised Catalog Description
(deletions in strike-through; additions in bold)**

Geospatial Sciences in Geography and ~~Geology~~ , **Geology and Planning**

Graduate programs

Master of Science, ~~Geospatial Sciences in Geography and Geology~~ , **Geology and Planning**

Doug Gouzie, Graduate Director

Temple Hall, Room 375; Phone 417-836-5228

DouglasGouzie@missouristate.edu

Program description

The program of study is designed to provide professional training and develop scholarly analytical skills in Geospatial Science with applications in one of three areas: 1) Physical Geography; 2) Human Geography and/or Planning; or 3) Geology. This program emphasizes the integration of the theoretical frameworks of Geography and Geology and Geospatial Science principles. By combining these areas, students will be able to address research problems regarding environmental issues and resource management.

The core curriculum consists of course work in Geographic Information Science (GIS), Remote Sensing, research methods and research presentations, both written and oral. Students are encouraged to develop, with their advisors, a program that fits their individual talents and goals. The department recommends that students choose a research concentration in Physical Geography, Human Geography and/or Planning, or Geology. If a student intends to pursue research outside these concentration areas, he/she should contact the program director and prospective advisor, if possible, before applying to the program. Admission is granted to students with demonstrated academic competences who are interested in a professional career in geography or geology.

Funding for graduate students in Geospatial Sciences is available through application for competitive graduate assistantships which carry both a stipend and fee waiver. Applications for graduate assistantships should be submitted directly to the Graduate Program Director in the Department of Geography, Geology and Planning. Additional graduate assistantships may also be available through listings by other departments and offices.

Admission requirements

The Department's Graduate Admissions Committee requests the following materials from each applicant:

1. An application for admission to the Graduate School;
2. Official transcripts from all previously attended institutions of higher education;
3. Graduate Record Examination scores;
4. Three letters of recommendation from persons familiar with the candidate's academic abilities and professional potential sent to the MS Program Director.
5. Separate application to the MS Program Director for a graduate assistantship, if desired. The application for graduate assistantship is available at the Graduate College website.

Since no specific undergraduate major is required, some students may be admitted on a conditional basis if they lack sufficient academic experience to take the required core courses. In these cases, specific undergraduate courses may be required before full admission is granted. Undergraduates interested in this program are encouraged to include courses in cartography, aerial photography interpretation, statistics, chemistry, biology and environmental science. Calculus and physics may be required for studies in some areas of geology.

Advisement

1. Each student should consult with the department's general graduate advisor before registering for the first semester of classes.
2. Each student is also encouraged to identify a general thesis topic as soon as possible. This will permit the selection of an appropriate faculty advisor who, in consultation with the student, will help to identify a second member of the student's advisory committee. The third member of this committee will be assigned by the department.
3. Once the membership of the advisory committee has been established, the student should rely upon its members, but especially the chairperson, for assistance in the selection of his/her elective courses, and for advice and direction in the thesis research.
4. Until such time as the advisory committee has been formed, the student should continue to consult with the department's graduate advisor.

Degree requirements

A minimum of 33 hrs with thesis; a minimum of 36 hours for the non-thesis option

1. **Required Geospatial Sciences Core (Total 15 hours)**

Course Code	Course Title	Credit Hours
<u>GEO 700</u>	Introduction to Graduate Study in Geospatial Sciences Geography, Geology and Planning	3 hrs
<u>GEO 701</u>	Graduate Research Methods in Geospatial Sciences Geography, Geology and Planning	3 hrs
<u>GEO 651</u>	Remote Sensing	3 hrs
<u>GEO 661</u>	Intermediate Geographic Information Science	3 hrs
	One of the following:	3 hrs
<u>GEO 662</u>	Internet Geospatial Science	
<u>GEO 666</u>	Advanced Geographic Information Science	
<u>GEO 668</u>	Thematic Cartography	
<u>GEO 672</u>	Introduction to Photogrammetry and LIDAR Technology	
<u>GEO 673</u>	Geographic Information Science Programming	
<u>GEO 675</u>	GPS Surveying and Mapping	
<u>GEO 678</u>	Remote Sensing Digital Image Processing	
<u>GEO 755</u>	Applications of Digital Cartography, Analytical Photogrammetry, and Remote Sensing	

Students who do not have adequate background in statistical analysis from their undergraduate course work are strongly encouraged to take at least one of the following (3 hours):

- MTH 645 Applied Statistics
- MTH 646 Analysis of Variance and Design of Experiments
- MTH 647 Applied Regression Analysis
- MTH 648 Applied Time Series Analysis

2. **Research Requirement (complete one).**

- a. **Thesis Option.** A student can take up to 3 hours of GRY 779 or GLG 779 plus up to 6 hours of GRY 799 or GLG 799. Successful completion of a thesis and thesis defense is required.
- b. **Non-Thesis Option.** Students choosing the non-thesis option must complete 3 hours of GRY 779 or GLG 779 plus 3 hours of GEO 780. Successful completion of a research project and scholarly report is required. The results of the research project must be presented orally at a departmental seminar or at a professional meeting and the student's advisor and the departmental Graduate Program Director must approve the written report on the research project. Students in the non-thesis option are not allowed to count thesis hours toward the 36 hour degree requirement.

3. **Additional Course Requirements.** Students in the thesis option must complete an additional 18 hours of graduate course work beyond the required 15-hour core. Students choosing to complete a thesis may count up to 3 credit hours of GRY 779 or GLG 779 and up to 6 credit hours of GRY 799 or GLG 799 toward this 18 hour requirement. Students in the non-thesis option must complete an additional 21 hours of graduate course work beyond the required 15 hour core. Students choosing the non-thesis option may count 3 credit hours of GRY 779 or GLG 779 and 3 credit hours of GEO 780 toward this 21 hour requirement. Students in the thesis option must complete at least 17 credit hours of course work at the 700 level; students in the non-thesis option must complete at least 18 credit hours of course work at the 700 level. Students must complete a program of study worksheet by the end of their first academic semester. Before enrolling in the 12th hour of graduate credit, the student, an academic advisor, and the Graduate Program Director must agree upon and sign an Advisor Approved Program of Study.

Students whose undergraduate background does not include the prerequisite material for GEO 651 and/or GEO 561 are required to take Introduction to Geographic Information Science for GRY 697 credit. This credit does not count toward the additional 18 hours of graduate course work required for the thesis option or toward the additional 21 hours of graduate course work required for the non-thesis option.

4. **Comprehensive Examination.** A written comprehensive examination must be taken before the end of the third semester of full-time enrollment in the program. Students will be provided reading lists and/or study guides specific to their individual program of study. For students in the thesis option, the examination questions will be provided by the student's advisor and at least two other

members of the student's thesis committee; for students in the non-thesis option, the examination questions will be provided by the student's advisor and two other members of the faculty selected by the departmental Graduate Director. A student may repeat the examination, or section of the examination, upon recommendation of the Graduate Program Director and approval of the Department Head. Students who have not passed the comprehensive examination upon completion of three academic semesters of full-time study will not be permitted to continue in the program. If a student opts to change tracks after completing the comprehensive examination, the student must take and pass the examination specific to the new selected track before a degree will be awarded.

The faculty members writing the examination questions shall determine what constitutes a passing mark for the exam.

5. **Research Concentrations.** The Department of Geography, Geology and Planning has identified three areas of research concentration for prospective students. Students are strongly encouraged to select a research topic in one of these concentration areas.

Physical Geography

Students interested in physical geography can select a research topic in fluvial geomorphology, water quality and watershed management, or climatology. Students should integrate geospatial science with physical geography when doing ~~either a thesis or non-thesis~~ a graduate research project. Students selecting this concentration would normally take at least two of the following courses:

- GRY 625 Environmental Hazards
- GRY 635 Global Climate and Weather Cycles
- GRY 645 Global Environmental Change
- GRY 650 Fluvial Geomorphology
- GRY 731 Environmental Assessment
- GRY 751 Topics in Advanced Physical Geography
- GLG 647 Water Resources
- GLG 782 Contaminant Geochemistry
- GEO 770 Advanced Field and Laboratory Methods

Human Geography and/or Planning

Students interested in human geography and/or planning can select a research topic in land use assessment, urban design, community and regional planning, neighborhood planning, transportation planning, or tourism planning and development. Students should integrate geospatial science with human geography and/or planning when doing ~~either a thesis or non-thesis~~ a graduate research project. Students selecting this concentration would normally take at least two of the following courses:

- GRY 610 Applications in Sustainable Geotourism
- GRY 625 Environmental Hazards
- GRY 645 Global Environmental Change
- GRY 731 Environmental Assessment
- PLN 605 Social Planning
- PLN 670 Planning Law
- PLN 671 Land Use Planning
- PLN 673 Urban Design and Preservation
- PLN 674 Open Space Planning

Geology

Students interested in geology can select a research topic in environmental geochemistry, geohydrology, karst systems, stratigraphy, or geophysics. Students should integrate geospatial science with geology when doing ~~either a thesis or non-thesis~~ a graduate research project. Students selecting this concentration would normally take at least two of the following courses:

- GLG 630 Optical Mineralogy
- GLG 647 Water Resources
- GLG 670 Principles of Stratigraphy
- GLG 672 Geohydrology
- GLG 673 Engineering Geology
- GLG 674 Petroleum Geology
- GLG 680 Geochemistry
- GLG 681 Geochemical Techniques
- GLG 690 Applied Geophysics
- GLG 694 Global Tectonics
- GLG 782 Contaminant Geochemistry

Students interested in research topics outside of these three concentrations should consult with the Graduate Program Director and a possible advisor before beginning the program.

Attachment B – Complete New Catalog Description

Geospatial Sciences in Geography, Geology and Planning

Graduate programs

Master of Science, Geospatial Sciences in Geography, Geology and Planning

Doug Gouzie, Graduate Director

Temple Hall, Room 375; Phone 417-836-5228

DouglasGouzie@missouristate.edu

Program description

The program of study is designed to provide professional training and develop scholarly analytical skills in Geospatial Science with applications in one of three areas: 1) Physical Geography; 2) Human Geography and/or Planning; or 3) Geology. This program emphasizes the integration of the theoretical frameworks of Geography and Geology and Geospatial Science principles. By combining these areas, students will be able to address research problems regarding environmental issues and resource management.

The core curriculum consists of course work in Geographic Information Science (GIS), Remote Sensing, research methods and research presentations, both written and oral. Students are encouraged to develop, with their advisors, a program that fits their individual talents and goals. The department recommends that students choose a research concentration in Physical Geography, Human Geography and/or Planning, or Geology. If a student intends to pursue research outside these concentration areas, he/she should contact the program director and prospective advisor, if possible, before applying to the program. Admission is granted to students with demonstrated academic competences who are interested in a professional career in geography or geology.

Funding for graduate students in Geospatial Sciences is available through application for competitive graduate assistantships which carry both a stipend and fee waiver. Applications for graduate assistantships should be submitted directly to the Graduate Program Director in the Department of Geography, Geology and Planning. Additional graduate assistantships may also be available through listings by other departments and offices.

Admission requirements

The Department's Graduate Admissions Committee requests the following materials from each applicant:

6. An application for admission to the Graduate School;
7. Official transcripts from all previously attended institutions of higher education;
8. Graduate Record Examination scores;
9. Three letters of recommendation from persons familiar with the candidate's academic abilities and professional potential sent to the MS Program Director.
10. Separate application to the MS Program Director for a graduate assistantship, if desired. The application for graduate assistantship is available at the Graduate College website.

Since no specific undergraduate major is required, some students may be admitted on a conditional basis if they lack sufficient academic experience to take the required core courses. In these cases, specific undergraduate courses may be required before full admission is granted. Undergraduates interested in this program are encouraged to include courses in cartography, aerial photography interpretation, statistics, chemistry, biology and environmental science. Calculus and physics may be required for studies in some areas of geology.

Advisement

5. Each student should consult with the department's general graduate advisor before registering for the first semester of classes.
6. Each student is also encouraged to identify a general thesis topic as soon as possible. This will permit the selection of an appropriate faculty advisor who, in consultation with the student, will help to identify a second member of the student's advisory committee. The third member of this committee will be assigned by the department.
7. Once the membership of the advisory committee has been established, the student should rely upon its members, but especially the chairperson, for assistance in the selection of his/her elective courses, and for advice and direction in the thesis research.
8. Until such time as the advisory committee has been formed, the student should continue to consult with the department's graduate advisor.

3

Degree requirements

A minimum of 33 hrs with thesis; a minimum of 36 hours for the non-thesis option

2. Required Geospatial Sciences Core (Total 15 hours)

Course Code	Course Title	Credit Hours
<u>GEO 700</u>	Introduction to Graduate Study in Geography, Geology and Planning	3 hrs
<u>GEO 701</u>	Graduate Research Methods in Geography, Geology and Planning	3 hrs
<u>GEO 651</u>	Remote Sensing	3 hrs
<u>GEO 661</u>	Intermediate Geographic Information Science	3 hrs
	One of the following:	3 hrs
<u>GEO 662</u>	Internet Geospatial Science	
<u>GEO 666</u>	Advanced Geographic Information Science	
<u>GEO 668</u>	Thematic Cartography	
<u>GEO 672</u>	Introduction to Photogrammetry and LiDAR Technology	
<u>GEO 673</u>	Geographic Information Science Programming	
<u>GEO 675</u>	GPS Surveying and Mapping	
<u>GEO 678</u>	Remote Sensing Digital Image Processing	
<u>GEO 755</u>	Applications of Digital Cartography, Analytical Photogrammetry, and Remote Sensing	

Students who do not have adequate background in statistical analysis from their undergraduate course work are strongly encouraged to take at least one of the following (3 hours):

- MTH 645 Applied Statistics
- MTH 646 Analysis of Variance and Design of Experiments
- MTH 647 Applied Regression Analysis
- MTH 648 Applied Time Series Analysis

3. Research Requirement (complete one).

- a. **Thesis Option.** A student can take up to 3 hours of GRY 779 or GLG 779 plus up to 6 hours of GRY 799 or GLG 799. Successful completion of a thesis and thesis defense is required.
- b. **Non-Thesis Option.** Students choosing the non-thesis option must complete 3 hours of GRY 779 or GLG 779 plus 3 hours of GEO 780. Successful completion of a research project and scholarly report is required. The results of the research project must be presented orally at a departmental seminar or at a professional meeting and the student's advisor and the departmental Graduate Program Director must approve the written report on the research project. Students in the non-thesis option are not allowed to count thesis hours toward the 36 hour degree requirement.

6. **Additional Course Requirements.** Students in the thesis option must complete an additional 18 hours of graduate course work beyond the required 15-hour core. Students choosing to complete a thesis may count up to 3 credit hours of GRY 779 or GLG 779 and up to 6 credit hours of GRY 799 or GLG 799 toward this 18 hour requirement. Students in the non-thesis option must complete an additional 21 hours of graduate course work beyond the required 15 hour core. Students choosing the non-thesis option may count 3 credit hours of GRY 779 or GLG 779 and 3 credit hours of GEO 780 toward this 21 hour requirement. Students in the thesis option must complete at least 17 credit hours of course work at the 700 level; students in the non-thesis option must complete at least 18 credit hours of course work at the 700 level. Students must complete a program of study worksheet by the end of their first academic semester. Before enrolling in the 12th hour of graduate credit, the student, an academic advisor, and the Graduate Program Director must agree upon and sign an Advisor Approved Program of Study.

Students whose undergraduate background does not include the prerequisite material for GEO 651 and/or GEO 561 are required to take Introduction to Geographic Information Science for GRY 697 credit. This credit does not count toward the additional 18 hours of graduate course work required for the thesis option or toward the additional 21 hours of graduate course work required for the non-thesis option.

7. **Comprehensive Examination.** A written comprehensive examination must be taken before the end of the third semester of full-time enrollment in the program. Students will be provided reading lists and/or study guides specific to their individual program of study. For students in the thesis option, the examination questions will be provided by the student's advisor and at least two other

members of the student's thesis committee; for students in the non-thesis option, the examination questions will be provided by the student's advisor and two other members of the faculty selected by the departmental Graduate Director. A student may repeat the examination, or section of the examination, upon recommendation of the Graduate Program Director and approval of the Department Head. Students who have not passed the comprehensive examination upon completion of three academic semesters of full-time study will not be permitted to continue in the program. If a student opts to change tracks after completing the comprehensive examination, the student must take and pass the examination specific to the new selected track before a degree will be awarded.

The faculty members writing the examination questions shall determine what constitutes a passing mark for the exam.

8. **Research Concentrations.** The Department of Geography, Geology and Planning has identified three areas of research concentration for prospective students. Students are strongly encouraged to select a research topic in one of these concentration areas.

Physical Geography

Students interested in physical geography can select a research topic in fluvial geomorphology, water quality and watershed management, or climatology. Students should integrate geospatial science with physical geography when doing a graduate research project. Students selecting this concentration would normally take at least two of the following courses:

- GRY 625 Environmental Hazards
- GRY 635 Global Climate and Weather Cycles
- GRY 645 Global Environmental Change
- GRY 650 Fluvial Geomorphology
- GRY 731 Environmental Assessment
- GRY 751 Topics in Advanced Physical Geography
- GLG 647 Water Resources
- GLG 782 Contaminant Geochemistry
- GEO 770 Advanced Field and Laboratory Methods

Human Geography and/or Planning

Students interested in human geography and/or planning can select a research topic in land use assessment, urban design, community and regional planning, neighborhood planning, transportation planning, or tourism planning and development. Students should integrate geospatial science with human geography and/or planning when doing a graduate research project. Students selecting this concentration would normally take at least two of the following courses:

- GRY 610 Applications in Sustainable Geotourism
- GRY 625 Environmental Hazards
- GRY 645 Global Environmental Change
- GRY 731 Environmental Assessment
- PLN 605 Social Planning
- PLN 670 Planning Law
- PLN 671 Land Use Planning
- PLN 673 Urban Design and Preservation
- PLN 674 Open Space Planning

Geology

Students interested in geology can select a research topic in environmental geochemistry, geohydrology, karst systems, stratigraphy, or geophysics. Students should integrate geospatial science with geology when doing a graduate research project. Students selecting this concentration would normally take at least two of the following courses:

- GLG 630 Optical Mineralogy
- GLG 647 Water Resources
- GLG 670 Principles of Stratigraphy
- GLG 672 Geohydrology
- GLG 673 Engineering Geology
- GLG 674 Petroleum Geology
- GLG 680 Geochemistry
- GLG 681 Geochemical Techniques
- GLG 690 Applied Geophysics
- GLG 694 Global Tectonics
- GLG 782 Contaminant Geochemistry

Students interested in research topics outside of these three concentrations should consult with the Graduate Program Director and a possible advisor before beginning the program.

9

Missouri State University Curricular Proposal Program Change or Deletion

Department Geography, Geology and Planning Date March 3, 2015

Title of Program Affected Graduate Certificate, Geospatial Information Sciences

Type of Program: Major Comprehensive Major Option Minor Certificate Certification
Academic Rules Other

Revised Catalog Description (cut and paste present description from online catalog, strikethrough all deletions, and insert and bold new information)

See Attachment A

Complete New Catalog Description

See Attachment B

Total Hours 12 hours (no change from current requirement)

What is changing? Check all boxes that apply.

- Title change
- Course changes of under 18 hours
- Course changes of 18 hours or more
- From option to program (major)
- From program (major) to option
- Program or option deletion
- Other _____

Reason for Proposed Change

This graduate certificate program was originally developed as a collaboration between the geospatial science faculty at Missouri State University and the Missouri University of Science & Technology (MS&T). The MS&T faculty involved in the development of this program have now left MS&T, and that institution no longer offers the certificate. (See e-mail message from MS&T Provost to MSU CNAS Dean Jahnke, included as Attachment C.) The proposed changes to the catalog description are intended to make clear that this certificate is now a stand-alone program available from MSU. The proposed addition of three more MSU graduate-level geospatial science courses to the list of available course choices is intended to compensate for the loss of the MS&T geospatial science courses originally available.

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty Senate. Forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the program needs to go through more than one committee/council, forward one additional form for each additional council/ committee marked.

- College Council** (Send all undergraduate program changes through College Council as first step before forwarding either to PEC, CGEIP, or directly to Faculty Senate)
*For information only
- Professional Education Committee** (Considers all program changes affecting BS and MS in Education and Educational Specialist degrees)
- Committee on General Education and Intercollegiate Programs** (Considers all general education and multi-college program changes)
- Graduate Council** (Considers all graduate-level program changes)

Signature 
Department Head

Date 3/3/2015

(Routing on Reverse Side)



Attachment A -- Revised Catalog Description (deletions in strike-through; additions in bold)

Geospatial Information Sciences Graduate Certificate

Program description

This certificate program is designed to provide graduate-level education in Geospatial Sciences including such focus areas as Geographic Information Systems, Internet Mapping, ~~Military and Intelligence Applications~~, and Remote Sensing. It is anticipated that this program would be attractive to **students in other MSU graduate programs such as Anthropology, Biology, and Criminology as well as to** working professionals in such organizations as the United States Geological Survey, the National Geospatial-Intelligence Agency, ~~and the United States Army and Army Corps of Engineers~~, **the US Forest Service, the US Fish and Wildlife Service, the National Park Service and numerous other federal, state and local agencies involved in the management of natural, cultural and historical resources.** ~~This certificate is being offered jointly by the Geological Engineering degree program in the Department of Geological Sciences and Engineering within the School of Materials, Energy and Earth Resources at the Missouri University of Science and Technology (MS&T) and the Department of Geography, Geology and Planning at Missouri State University. Faculty members from MS&T and Missouri State will jointly organize, administer and offer the graduate certificate as described below.~~

~~This certificate uniquely utilizes the complementary expertise at the MS&T and Missouri State to provide a wide range of courses and topic areas so that students can customize their program of study and focus on particular interests.~~

Completion requirements

Students must have an overall grade point average of 3.00 for completion of the certificate program.

Curriculum (12 hours total)

~~It is anticipated that a student will typically complete two courses from those offered by MS&T and two courses from those offered by Missouri State. Courses will be offered both at off-campus locations (such as at a USGS or NGA facility) and at the respective campuses. Some courses will be available as on-line distance offerings in the future. Each university has appointed a program technical coordinator who will serve as primary academic advisor and liaison for student in the program. Courses should be selected, in consultation with and approved by these the program coordinators to insure proper prerequisites are satisfied and that duplication is avoided. A summary of courses tentatively planned to be offered is listed below, the student should select four of the following three-credit-hour courses, for a total of twelve credit hours.~~

MS&T courses:

- ~~• GE 315 Statistical Methods in Environmental Geology and Engineering~~
- ~~• GE 342 Military Geology~~
- ~~• GE 344 Remote Sensing Technology~~
- ~~• GE 346 Applications of Geographic Information Systems~~
- ~~• GE 446 Advanced Remote Sensing and Image Processing~~

Missouri State courses:

- GEO 651 Remote Sensing
- GEO 661 Intermediate Geographic Information Science
- GEO 662 Internet Geospatial Science
- GEO 666 Advanced Geographic Information Sciences
- GEO 668 Thematic Cartography
- GEO 672 Introduction to Photogrammetry and LIDAR Technology

(4)

- GEO 673 Geographic Information Science Programming
- GEO 675 GPS Surveying and Mapping
- GEO 678 Remote Sensing Digital Image Processing

Other courses approved by the ~~MS&T and Missouri State faculty~~ **program coordinator** may be substituted for any of the above listed courses on a case-by-case basis. The certificate program ~~technical~~ coordinators must approve the substitution prior to enrolling in any course.

Admission criteria

The Geospatial Information Sciences Certificate program is open to all persons holding a BS, BA, MS, or PhD degree. Students must, of course, satisfy all prerequisites for any courses they take in the program; or they must obtain instructor approval to waive ~~any~~ **specific** prerequisites. Once admitted to the program, the student must take a minimum of four courses as designated and approved by the program ~~director~~ **coordinator** and must have an average cumulative grade point average of 3.00 or better to receive the certificate.

Students who complete the four-course requirements for the certificate with a grade of B or better in each course may be admitted directly to the ~~respective MS program in each institution~~ **Geospatial Sciences** if they so choose. This admission does not waive the necessity for students to take required prerequisites for other required courses that are part of the MS program. The certificate credits taken will count toward the requirement for their MS degree.

(4)

Attachment B – Complete New Catalog Description

Geospatial Information Sciences Graduate Certificate

Program description

This certificate program is designed to provide graduate-level education in Geospatial Sciences including such focus areas as Geographic Information Systems, Internet Mapping, and Remote Sensing. It is anticipated that this program would be attractive to students in other MSU graduate programs such as Anthropology, Biology, and Criminology, as well as to working professionals in such organizations as the United States Geological Survey, the National Geospatial-Intelligence Agency, the United States Army Corps of Engineers, the US Forest Service, the US Fish and Wildlife Service, the National Park Service and numerous other federal, state and local agencies involved in the management of natural, cultural and historical resources.

Completion requirements

Students must have an overall grade point average of 3.00 for completion of the certificate program.

Curriculum (12 hours total)

In consultation with the program coordinator, the student should select four of the following three-credit-hour courses, for a total of twelve credit hours.

- GEO 651 Remote Sensing
- GEO 661 Intermediate Geographic Information Science
- GEO 662 Internet Geospatial Science
- GEO 666 Advanced Geographic Information Sciences
- GEO 668 Thematic Cartography
- GEO 672 Introduction to Photogrammetry and LiDAR Technology
- GEO 673 Geographic Information Science Programming
- GEO 675 GPS Surveying and Mapping
- GEO 678 Remote Sensing Digital Image Processing

Other courses approved by the program coordinator may be substituted for any of the above listed courses on a case-by-case basis. The certificate program coordinators must approve the substitution prior to enrolling in any course.

Admission criteria

The Geospatial Information Sciences Certificate program is open to all persons holding a BS, BA, MS, or PhD degree. Students must, of course, satisfy all prerequisites for any courses they take in the program; or they must obtain instructor approval to waive specific prerequisites. Once admitted to the program, the student must take a minimum of four courses as designated and approved by the program coordinator and must have an average cumulative grade point average of 3.00 or better to receive the certificate.

Students who complete the four-course requirements for the certificate with a grade of B or better in each course may be admitted directly to the MS program in Geospatial Sciences if they so choose. This admission does not waive the necessity for students to take required prerequisites for other required courses that are part of the MS program. The certificate credits taken will count toward the requirement for their MS degree.

Attachment C – E-mail Exchange between CNAS Dean Tammy Jahnke and MS&T Provost Warren Wray

From: Jahnke, Tamera S
Sent: Tuesday, December 10, 2013 8:43 AM
To: Gouzie, Douglas R; Plymate, Thomas G
Cc: Einhellig, Frank A
Subject: FW: Missouri State University

Doug and Tom,

I believe that this is enough to remove anything cooperative from our catalog. Let's make it ours and do the right thing for MSU.

Tammy

Dr. Tammy Jahnke
Dean
College of Natural and Applied Sciences

Missouri State University
901 S. National Ave.
Springfield, MO 65897
phone 417-836-5249 | fax 417-836-6934
TameraJahnke@missouristate.edu<<mailto:TameraJahnke@missouristate.edu>> |
www.missouristate.edu<<http://www.missouristate.edu>>
<http://www.cnas.missouristate.edu/>

[\[cid:image001.jpg@01CEC381.6AD2A3F0\]](#)<<http://www.missouristate.edu/about/>>

From: Wray, Warren K. [<mailto:wkwray@mst.edu>]
Sent: Monday, October 07, 2013 5:20 PM
To: Jahnke, Tamera S
Subject: RE: Missouri State University

We currently don't offer that certificate. I will follow up and see where it was offered and get back to you.

Warren K. Wray, Ph.D., P.E.
Provost and Executive Vice Chancellor
For Academic Affairs
Missouri University of Science and Technology (Missouri S&T)
204 Parker Hall
300 West 13th Street
Rolla, MO 65409-0910
Phone: 573.341.4138
FAX: 573.341.6777
wkwray@mst.edu<<mailto:wkwray@mst.edu>>

From: Jahnke, Tamera S [<mailto:TameraJahnke@MissouriState.edu>]
Sent: Monday, October 07, 2013 4:59 PM
To: Wray, Warren K.
Subject: Missouri State University

(4)

Provost Wray –

I promised to get back with you on commencement information but I have one other issue that we need to talk about (or you can refer me to the appropriate person).

Fall Commencement for the engineers is at 12:30 PM on Friday, December 13. We would love to have you join us. Let me know!

The second topic – MSU and Missouri S&T have a joint graduate certificate in GIS that was approved many years ago. I don't know if S&T is using the certificate but MSU is using it. The MSU students are earning the certificate credit by taking all MSU classes as we have lost any contact we once had at Missouri S&T. As we were trying to clean up our own catalog we couldn't find a contact on the S&T website nor any reference to the certificate program. We think it was listed in your geological engineering department at one point. The basic question is if anyone at S&T or your students are interested in working on this joint certificate program any longer or if we just claim it as our own and change our catalog.

I would be happy to talk with anyone on your campus about the second topic so we can find a solution that works for both of us.

Tammy

Dr. Tammy Jahnke
Dean
College of Natural and Applied Sciences

Missouri State University
901 S. National Ave.
Springfield, MO 65897
phone 417-836-5249 | fax 417-836-6934
TameraJahnke@missouristate.edu<<mailto:TameraJahnke@missouristate.edu>> |
www.missouristate.edu<<http://www.missouristate.edu>>
<http://www.cnas.missouristate.edu/>

5

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Geography, Geology & Planning Date March 3, 2015

Check one: New COURSE New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached? _____

Course Code GLG Course Number 334 Course Title Sedimentary Geology

PROPOSED CATALOG DESCRIPTION

GLG 334 Sedimentary Geology

Prerequisites: GLG 314, GLG 332. Principles underlying the production, weathering and deposition of sediments; environmental control of lithofacies and biofacies; recognition of ancient depositional environments by key indicators and modern analogs.

Credit hours: 3; Lecture contact hours: 1; Lab contact hours: 4

Typically offered: Spring

PURPOSE OF COURSE

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add this new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major. To partially offset the increase in required credit hours in the major, we are removing the portion of GLG 333 previously devoted to sedimentary petrology (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 333 from 4 to 3. Likewise, we are removing the portion of GLG 570 previously devoted to classical stratigraphy (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 570 from 4 to 3 as well.

Specific purpose for GLG 334: To provide students with the ability to classify sedimentary rocks and interpret their history, depositional mechanisms and depositional environments based on texture, sedimentary structures and lithology. To apply this knowledge to the interpretation and analysis of sedimentary sequences and basins.

RELATIONSHIP TO OTHER DEPARTMENTS

This course is intended to serve exclusively students in our Geology major and minor. We do not anticipate any impact on any other departments.

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

- College Council (All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
- Professional Education Committee (Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
- Committee on General Education and Intercollegiate Programs (Considers all general education and multi-college new course proposals)
- Graduate Council (Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature Thomas G. Duff
Department Head

Date 3/3/2015

(Routing on Reverse Side)

FS New Course - 4/10/2014

(5)

NEW COURSE RESOURCE INFORMATION

Department Geography, Geology & Planning Date March 3, 2015

Course Number and Title GLG 334 – Sedimentary Geology

Anticipated Average Enrollment 20 Maximum Enrollment Limit 30

Faculty Load Assignment 5 Equated Hours

1 Is another course being deleted? If so, give course number and title.

No. However, two existing courses are being reduced from 4 credit hours to 3 credit hours each to partially offset the credit hours required for this new course.

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add this new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major. To partially offset the increase in required credit hours in the major, we are removing the portion of GLG 333 previously devoted to sedimentary petrology (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 333 from 4 to 3. Likewise, we are removing the portion of GLG 570 previously devoted to classical stratigraphy (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course; we are consequently reducing the credit hours for GLG 570 from 4 to 3 as well.

2 What will this course require in the way of:

- Additional library holdings? None
- Additional computer resources? None
- Additional or remodeled facilities? None
- Additional equipment or supplies? None
- Additional travel funds? None
- Additional faculty--general vs specialized? None
- Other additional expenses? None

3 If additional faculty are not required, how will faculty be made available to teach this course?

This course will be taught by present faculty.

List names of current faculty qualified to teach this course: Dr. Charles Rovey, Dr. Kevin Evans, Dr. Melida Gutierrez

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

This course is intended to serve exclusively students in our Geology major and minor. We do not anticipate any impact on any other departments.

5 Other comments:

POLICY STATEMENT



GLG-334 – Sedimentary Geology

Spring 20xx

Dr. Charles Rovey
charlesrovey@missouristate.edu

OFFICE HOURS: ????
Temple 302, 376; 836-6890

CATALOG DESCRIPTION: GLG 334 Sedimentary Geology 3 (1-4)

Principles underlying the production, weathering and deposition of sediments; environmental control of lithofacies and biofacies; recognition of ancient depositional environments by key indicators and modern analogs. Prerequisites: GLG 314, GLG 332

TEXTBOOK:

Sedimentary Geology: An Introduction to Sedimentary Rocks and Stratigraphy (3rd ed.) by Prothero and Schwab is required. It is important for you to complete the assigned readings. They are intended to compliment lectures, not to be identical with them. I strongly suggest that you have your textbook with you each class session, since I will refer to figures in the text during both lecture and lab.

Sometimes lectures will present a general overview; in these instances it's important for you to read the complimentary material in the text to explain premises and add detail. At other times I'll use lectures to add details that aren't in the text. Then, you need to consult the text for a broader overview.

COURSE OBJECTIVES:

Our main objectives are to:

1. Classify detrital and carbonate sedimentary rocks based on hand-sample and thin-section observations;
2. Interpret depositional mechanisms and environments on the basis of sedimentary structures and lithologies;
3. Integrate lateral and vertical changes in lithology into sedimentary sequences.

COURSE FORMAT:

The course is divided into a lecture session on Mondays and a lab session on Wednesdays. In practice, however, the two different formats will overlap.

ATTENDANCE:

At the 300 level I assume a high level of maturity and self motivation. Therefore, if you miss class, for whatever reason, it is your responsibility to obtain missed material from your classmates. "Make-up lectures" cannot be given for any reason.

GRADING:

Assignments turned in late will be penalized 10% per day. Your grade will be based on the following:

Midterm Exams: 2 exams @ 15% each:	30%
Labs	30%
Miscellaneous	5%
Final Exam	25%
Quizzes	10%

Final letter grades will be assigned as follows:

A	100% - 92.5%	C+	79.9% - 77.5%
A-	92.4% - 90.0%	C	77.4% - 72.5%
B+	89.9% - 87.5%	C-	72.4% - 70.0%
B	87.4% - 82.5%	D+	69.9% - 67.5%
B-	82.4% - 80.0%	D	67.4% - 60.0%
		F	< 60.0%

STUDENT RESPONSIBILITIES:

Academic Honesty: You are responsible for knowing and following MSU's student honor code, *Student Academic Integrity Policies and Procedures*. MSU faculty expect that each student will be honest in submitting work for grading. Among other things, this means that work submitted for grades will be the work of the student whose name is on the paper. "Academic honesty" also implies that students will not utilize unauthorized help on exams. Upon an individual's first offense against academic honesty a grade of zero will be given for that assignment, or portion of the assignment, depending on the professor's discretion. Upon an individual's 2nd offense, both instances will be documented for the Department Head and forwarded to the Chair of the Academic Integrity Council for assignment of an XF grade, failure due to academic dishonesty.

Seeking Extra Help: It is your responsibility to seek additional help in understanding the course materials before irreparable damage occurs. Obviously you cannot do this unless you keep up with readings and assignments. I will gladly provide extra assistance during my office hours or any other mutually acceptable time. Nevertheless, you should first prepare as best you can by thoroughly reading the assigned material, carefully reviewing class notes, and patiently comparing the two so that you can communicate in a coherent fashion and ask specific questions on the material which has not been understood.

Integration of Course Materials: It is essential that you review and integrate the various concepts between classes. You should (1) Carefully review your notes within 24 hours of each session; (2) Compare your notes with the corresponding reading assignment; and (3) Review your entire sequence of notes at least every other week. To this end, I will give review questions covering terms and ideas for most lecture and reading topics. You are not required to turn these in, except for those pertaining to certain readings. However if you complete and return the review sheets within one week you may receive up to one bonus point per review, which will be credited to your next exam.

LABS:

Please work independently of others except when specifically placed into groups. First attempt to solve the problem yourself, and then if necessary, ask me for assistance. If you do not utilize the time provided to complete the labs but still turn in a completed lab, I will have to assume that you are copying your answers.

MISCELLANEA:

Class Environment: This is a relatively small class so feel free to speak up and ask questions whenever you feel you might have missed something. However, please be polite in your questions, that is, don't speak out solely to be argumentative/disruptive, and try not to monopolize discussions. Please be courteous to the instructor and fellow students. Don't disrupt their concentrations by incessant talking, snoring, etc. I do not tolerate swearing or abusive language in class!

Drop Policy: The University's deadline for a no-penalty withdrawal is Nov. ??.

Prerequisites: GLG 314 (Historical Geology) and GLG 332 (Mineralogy).

Cell Phones: The use by students of cell phones, pagers, or similar communication devices during scheduled classes is prohibited. All such devices must be turned off or put in a silent (vibrate) mode and **should not be taken out during class!**

"To request academic accommodations for a disability, contact the Director of Disability Services, Plaster Student Union, Suite 405, (417)836-4192 or (417) 836-6792 (TTY). Students are required to provide documentation of disability to Disability Services prior to receiving accommodations. Disability Services refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and Psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 8360478."

"Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity".

GLG 570 COURSE SYLLABUS, SPRING 20xx

(S)

Week	Lecture	Lab	Reading
1	Intro. to sedimentary rocks Basic sedimentologic model	Sorting, rounding & maturity	Ch. 1
2	Weathering & soil formation	Weathering sequences & source areas	Ch. 2
3	Sediment transport	Sediment transport	Ch. 3, & 5 (86-94)
4	Sediment Transport	Pipette analysis	
5	Sed. structures & Trace Fossils	Sedimentary Structures	Ch. 4
6	Sandstones & conglomerates	Conglomerates	Ch. 5 & 6 (p. 112)
7	EXAM 1	Textural analysis & depositional environments	
8	Limestone & dolomite	Sandstone classification	Ch. 11
9	Carbonate environments	Wilson cycle & sedimentation	Ch.12 &19 (196-209)
10	Terrestrial environments	Sandstone maturity & depositional environments	Ch. 8
11	Fluvial & coastal environments	Carbonate classification	Ch. 9
12	Deltaic seds. & foreland basins environments	Carbonate depositional	
13	EXAM 2	General facies model	
14	Misc. detrital sediments	Sedimentation and tectonics	Ch. 17
15	Well logging & Missouri's Cambrian strata		
16	Continued		

FINAL EXAM: ???

6

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GEO 562 Course Title Internet Geospatial Science

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GEO 562 Internet Geospatial Science

Prerequisite: GEO 561.

Basic understanding of the contemporary standards for using the Internet to distribute and utilize geospatial data. Students will ~~develop and implement both single or multiple source geospatial portals set up and maintain a WebGIS server, design maps, and publish maps to the WebGIS server.~~ A major part of the course will examine ~~user interaction design for geospatial data in both a wired and wireless environment~~ **the development of WebGIS applications that utilize the published WebGIS services.** May be taught concurrently with GEO 662. Cannot receive credit for both GEO 662 and GEO 562.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

Complete New Catalog Information

GEO 562 Internet Geospatial Science

Prerequisite: GEO 561.

Basic understanding of the contemporary standards for using the Internet to distribute and utilize geospatial data. Students will set up and maintain a WebGIS server, design maps, and publish maps to the WebGIS server. A major part of the course will examine the development of WebGIS applications that utilize the published WebGIS services. May be taught concurrently with GEO 662. Cannot receive credit for both GEO 662 and GEO 562.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

To make catalog description a more accurate representation of current course content.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas P. [Signature]
Department Head

Date 3/3/2015

(Routing on Reverse Side)

6

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to X an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GEO 662 Course Title Internet Geospatial Science

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GEO 662 Internet Geospatial Science

Recommended Prerequisite: GEO 561 or GEO 661.

Basic understanding of the contemporary standards for using the Internet to distribute and utilize geospatial data. Students will ~~develop and implement both single or multiple source geospatial portals set up and maintain a WebGIS server, design maps, and publish maps to the WebGIS server.~~ A major part of the course will examine ~~user interaction design for geospatial data in both a wired and wireless environment~~ **the development of WebGIS applications that utilize the published WebGIS services.** May be taught concurrently with GEO 562. Cannot receive credit for both GEO 562 and GEO 662.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

Complete New Catalog Information

GEO 662 Internet Geospatial Science

Recommended Prerequisite: GEO 561 or GEO 661.

Basic understanding of the contemporary standards for using the Internet to distribute and utilize geospatial data. Students will set up and maintain a WebGIS server, design maps, and publish maps to the WebGIS server. A major part of the course will examine the development of WebGIS applications that utilize the published WebGIS services. May be taught concurrently with GEO 562. Cannot receive credit for both GEO 562 and GEO 662.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

To make catalog description a more accurate representation of current course content.

How Did You Determine the Need For This Change or Deletion?

See above.

 Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
*for information only
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas Olyffe
Department Head

Date 3/3/2015

(Routing on Reverse Side)

9

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GEO 566 Course Title Advanced Geographic Information Science

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GEO 566 Advanced Geographic Information Science

Prerequisite: GEO 561.

A theoretical and practical examination of analytical methods ~~use used~~ in GIS, including ~~vector and raster models, spatial overlay, incorporation of field data, analysis of surfaces, interpolation, TINs and network analysis~~ **point pattern/clustering analysis, global and local spatial autocorrelation, analysis of fields, spatial interpolation, map overlay and cartographic modeling, and new approaches to spatial analysis.** May be taught concurrently with GEO 666. Cannot receive credit for both GEO 666 and GEO 566.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

Complete New Catalog Information

GEO 566 Advanced Geographic Information Science

Prerequisite: GEO 561.

A theoretical and practical examination of analytical methods used in GIS, including point pattern/clustering analysis, global and local spatial autocorrelation, analysis of fields, spatial interpolation, map overlay and cartographic modeling, and new approaches to spatial analysis. May be taught concurrently with GEO 666. Cannot receive credit for both GEO 666 and GEO 566.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

To make catalog description a more accurate representation of current course content.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas D. Dyke
Department Head

Date 3/3/2015

(Routing on Reverse Side)

7

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GEO 666 Course Title Advanced Geographic Information Science

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GEO 666 Advanced Geographic Information Science

Recommended Prerequisite: GEO 561 or GEO 661.

A theoretical and practical examination of analytical methods ~~use used~~ in GIS, including ~~vector and raster models, spatial overlay, incorporation of field data, analysis of surfaces, interpolation, TINs and network analysis~~ **point pattern/clustering analysis, global and local spatial autocorrelation, analysis of fields, spatial interpolation, map overlay and cartographic modeling, and new approaches to spatial analysis.** May be taught concurrently with GEO 566. Cannot receive credit for both GEO 566 and GEO 666.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

Complete New Catalog Information

GEO 666 Advanced Geographic Information Science

Recommended Prerequisite: GEO 561 or GEO 661.

A theoretical and practical examination of analytical methods used in GIS, including point pattern/clustering analysis, global and local spatial autocorrelation, analysis of fields, spatial interpolation, map overlay and cartographic modeling, and new approaches to spatial analysis. May be taught concurrently with GEO 566. Cannot receive credit for both GEO 566 and GEO 666.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

To make catalog description a more accurate representation of current course content.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a non-substantive change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
 - *for information only
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature 
Department Head

Date 3/3/2015

(Routing on Reverse Side)

8

Missouri State University
Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to X an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GEO 700 Course Title Introduction to Graduate Study in Geospatial Science

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GEO 700 Introduction to Graduate Study in ~~Geospatial Science~~ **Geography, Geology and Planning**
~~Orientation to graduate study in geospatial sciences and development of a research proposal.~~ **This course serves as a foundation for students pursuing a graduate degree in the Department of Geography, Geology and Planning. First-semester graduate students are introduced to the research interests of the department's faculty, are guided in effective strategies for conducting a literature search and are mentored in the effective development of a research proposal.** Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: Fall

Complete New Catalog Information

GEO 700 Introduction to Graduate Study in Geography, Geology and Planning
This course serves as a foundation for students pursuing a graduate degree in the Department of Geography, Geology and Planning. First-semester graduate students are introduced to the research interests of the department's faculty, are guided in effective strategies for conducting a literature search and are mentored in the effective development of a research proposal. Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion Course Code Course Number Title Prerequisite
- Credit Hours/Contact Hours Periodicity Description

Reason for Proposed Change or Deletion

New title: To make clear to all departmental faculty and all prospective graduate students that all academic disciplines represented within the department are also available as options for graduate study in the department's graduate program.
New course description: To clarify the content of this course and its role within the department's graduate program.

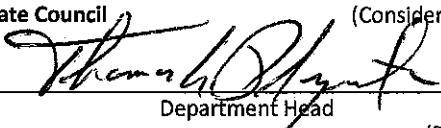
How Did You Determine the Need For This Change or Deletion?

Some departmental faculty have indicated difficulty recruiting graduate students into the department's graduate program because it was not clear to prospective students that their specific sub-discipline of the geosciences was included. Furthermore, some students in other MSU graduate programs have signed up for this course mistakenly expecting an introduction to the use of geospatial software. We introduce the use of geospatial software in our undergraduate *Introduction to Geospatial Science* (GRY 363), and we expect all students entering our graduate program to already have that skill set from their undergraduate studies.

___ Check if this is a non-substantive change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
*for information only
- ___ **Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- ___ **Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature 
Department Head

Date 3/3/2015

(Routing on Reverse Side)

9

Missouri State University
Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to X an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GEO 701 Course Title Research Methods in Geospatial Science

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

~~GEO 701 Graduate Research Methods in Geospatial Science~~ **Geography, Geology and Planning**
Prerequisite: GEO 700. Methods of collecting, organizing, and analyzing data pertinent to graduate study in ~~Geospatial Science~~ **geography, geology and planning**. Emphasis will be on the application of univariate and multivariate statistical techniques and other quantitative techniques pertinent to mathematically and statistically modeling ~~geospatial~~ problems in **geography, geology and planning**. Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2
Typically offered: Spring

Complete New Catalog Information

GEO 701 Graduate Research Methods in Geography, Geology and Planning
Prerequisite: GEO 700. Methods of collecting, organizing, and analyzing data pertinent to graduate study in geography, geology and planning. Emphasis will be on the application of univariate and multivariate statistical techniques and other quantitative techniques pertinent to mathematically and statistically modeling problems in geography, geology and planning. Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Spring

What is changing? Check all boxes that apply.

- Course Deletion Course Code Course Number Title Prerequisite
- Credit Hours/Contact Hours Periodicity Description

Reason for Proposed Change or Deletion

To make clear to all departmental faculty and all prospective graduate students that all academic disciplines represented within the department are also available as options for graduate study in the department's graduate program. Also to make clear that this course offers a more advanced treatment of data analysis than is taught in our undergraduate *Research Methods in Geography and Planning* (GRY 367).

How Did You Determine the Need For This Change or Deletion?

Some departmental faculty have indicated difficulty recruiting graduate students into the department's graduate program because it was not clear to prospective students that their specific sub-discipline of the geosciences was included. Furthermore, some incoming graduate students have tried to argue that they should not be required to take this course because they've had GRY 367 or an equivalent course at the undergraduate level.

___ Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
*for information only
- ___ **Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- ___ **Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas D. [Signature]
Department Head

Date 3/3/2015

(Routing on Reverse Side)

10

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GLG 333 Course Title Petrology

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GLG 333 Igneous and Metamorphic Petrology

Prerequisite: GLG 332. Origin, classification, and identification of common igneous and metamorphic rocks. A grade of "C" or better is required in this course in order to take GLG 413. Cannot be taken Pass/Not Pass.

Credit hours: 4 3 Lecture contact hours: 2 1 Lab contact hours: 4 Typically offered: Spring

Complete New Catalog Information

GLG 333 Igneous and Metamorphic Petrology

Prerequisite: GLG 332. Origin, classification, and identification of common igneous and metamorphic rocks. A grade of "C" or better is required in this course in order to take GLG 413. Cannot be taken Pass/Not Pass.

Credit hours: 3 Lecture contact hours: 1 Lab contact hours: 4 Typically offered: Spring

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add a new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major.

To partially offset the increase in required credit hours in the major, we are removing the portion of GLG 333 previously devoted to sedimentary petrology (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course. This will allow a more detailed treatment of igneous and metamorphic rocks in GLG 333 while reducing the total credit hours from 4 to 3.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a non-substantive change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council (Considers all 600-900 level course changes.)

Signature Thomas G. Olyk
Department Head

Date 3/3/2015

(Routing on Reverse Side)

11

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GLG 570 Course Title Principles of Stratigraphy

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GLG 570 Principles of Stratigraphy

Prerequisite: ~~GLG 314 and GLG 333~~ **GLG 334.**

~~Principles underlying the deposition of sediments; environmental control of lithofacies and biofacies; recognition of ancient depositional environments by key indicators and modern analogs.~~ **Principles and procedures applied to the study of sedimentary successions; astronomical forcing, cyclicity, eustasy, and tectonic controls on stratification and basin evolution; application of the Stratigraphic Code, practical field methods, observations and interpretation of depositional environments, and sequence stratigraphic interpretations; field trips required.** May be taught concurrently with GLG 670. Cannot receive credit for both GLG 670 and GLG 570.

Credit hours: **4 3** Lecture contact hours: **3 2** Lab contact hours: 2 Typically offered: Fall

Complete New Catalog Information

GLG 570 Principles of Stratigraphy

Prerequisite: ~~GLG 314 and GLG 334.~~

Principles and procedures applied to the study of sedimentary successions; astronomical forcing, cyclicity, eustasy, and tectonic controls on stratification and basin evolution; application of the Stratigraphic Code, practical field methods, observations and interpretation of depositional environments, and sequence stratigraphic interpretations; field trips required. May be taught concurrently with GLG 670. Cannot receive credit for both GLG 670 and GLG 570.

Credit hours: 3 Lecture contact hours: 2 Lab contact hours: 2 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add a new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major.

To partially offset the increase in required credit hours in the major, we are removing the portion of GLG 570/670 previously devoted to classical stratigraphy (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course. This will allow a more detailed treatment of biostratigraphy and sequence stratigraphy in GLG 570/670 while reducing the total credit hours from 4 to 3.

How Did You Determine the Need For This Change or Deletion? See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas Olyk
Department Head

Date 3/3/2015

(Routing on Reverse Side)

11

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GLG 670 Course Title Principles of Stratigraphy

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GLG 670 Principles of Stratigraphy

Recommended Prerequisite: ~~GLG 314 and GLG 333 334.~~

~~Principles underlying the deposition of sediments; environmental control of lithofacies and biofacies; recognition of ancient depositional environments by key indicators and modern analogs.~~ **Principles and procedures applied to the study of sedimentary successions; astronomical forcing, cyclicity, eustasy, and tectonic controls on stratification and basin evolution; application of the Stratigraphic Code, practical field methods, observations and interpretation of depositional environments, and sequence stratigraphic interpretations; field trips required.** May be taught concurrently with GLG 570. Cannot receive credit for both GLG 570 and GLG 670.

Credit hours: ~~4~~ **3** Lecture contact hours: ~~3~~ **2** Lab contact hours: **2** Typically offered: Fall

Complete New Catalog Information

GLG 670 Principles of Stratigraphy

Prerequisite: ~~GLG 314 and GLG 334.~~

Principles and procedures applied to the study of sedimentary successions; astronomical forcing, cyclicity, eustasy, and tectonic controls on stratification and basin evolution; application of the Stratigraphic Code, practical field methods, observations and interpretation of depositional environments, and sequence stratigraphic interpretations; field trips required. May be taught concurrently with GLG 570. Cannot receive credit for both GLG 570 and GLG 670.

Credit hours: **3** Lecture contact hours: **2** Lab contact hours: **2** Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

Results from the nationally normed Area Concentration Achievement Test over the past three years indicate that our graduating senior geology majors are achieving below the national average in some of the traditional areas of sedimentary geology (sedimentology, sedimentary petrology, classical stratigraphy). Consequently, we are proposing to add a new 3-credit-hour (5-contact-hour) course in Sedimentary Geology to the requirements for our Geology major.

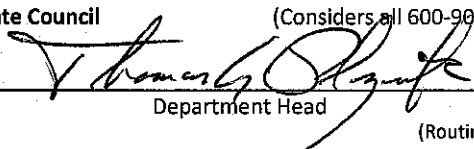
To partially offset the increase in required credit hours in the major, we are removing the portion of GLG 570/670 previously devoted to classical stratigraphy (approximately one fourth of that course) and moving that material to the new Sedimentary Geology course. This will allow a more detailed treatment of biostratigraphy and sequence stratigraphy in GLG 570/670 while reducing the total credit hours from 4 to 3.

How Did You Determine the Need For This Change or Deletion? See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
*for information only
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature 
Department Head

Date 3/3/2015

(Routing on Reverse Side)

12

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning

Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GRY 300 Course Title Geography of the United States

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GRY 300 Geography of the United States

Physical and cultural regions of the United States, including their characteristics and resource utilization. Topics include landforms, climates, natural resources, economic activities, and cultural and political patterns.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: ~~Fall~~ **Upon demand**

Complete New Catalog Information

GRY 300 Geography of the United States

Physical and cultural regions of the United States, including their characteristics and resource utilization. Topics include landforms, climates, natural resources, economic activities, and cultural and political patterns.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: Upon demand

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

GRY is no longer required in any of the options in either the B.A. or B.S. program in Geography. Therefore, we are offering it on an "upon demand" only basis.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature 
Department Head

(Routing on Reverse Side)

Date 3/3/2015

13

Missouri State University Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GRY 367 Course Title Research Methods in Geography and Planning

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GRY 367 Research Methods in Geography and Planning Geospatial Science

Prerequisite: MTH 340 or AGR 330 or PSY 200 or QBA 237 or REC 328 or SOC 302.

With emphasis on applications of descriptive and inferential statistics this course will introduce methods of sampling procedures, collecting, organizing, interpreting and analyzing data related to geography and ~~planning~~ **geospatial science**.

This course will also include computer applications. Cannot receive credit for both GRY 367 and PLN 367.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: ~~Fall, Spring~~

Complete New Catalog Information

GRY 367 Research Methods in Geography and Geospatial Science

Prerequisite: MTH 340 or AGR 330 or PSY 200 or QBA 237 or REC 328 or SOC 302.

With emphasis on applications of descriptive and inferential statistics this course will introduce methods of sampling procedures, collecting, organizing, interpreting and analyzing data related to geography and geospatial science. This course will also include computer applications. Cannot receive credit for both GRY 367 and PLN 367.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: Fall

What is changing? Check all boxes that apply.

- Course Deletion
- Course Code
- Course Number
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for Proposed Change or Deletion

With the hiring two years ago of a geography/planning faculty member with expertise in both geographic research methods and planning research methods, we now have the personnel to teach GRY 367 and PLN 367 (Planning Methods) as separate courses, tailored separately for their respective intended audiences. We have already made a change to the course title and catalog description for PLN 367 to reflect this separation, but we neglected to make the corresponding change to the title and description of GRY 367 at that time.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas D. Olyffe
Department Head

Date 3/3/2015

(Routing on Reverse Side)

(14)

Missouri State University
Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 2, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GRY 525 Course Title Environmental Hazards

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GRY 525 Environmental Hazards

Prerequisite: GRY 142 or both GRY 135 and GLG 110.

Identification, recognition, and impact of hazards. Physical exposure to hazards and human vulnerability in LDCs and MDCs. Disaster trends and patterns. Behavioral and structural paradigms of hazards. EM-DAT: international disaster database. Statistical methods used in risk assessments. Risk perception, communication, and disaster management. Tectonic, mass movement, atmospheric, hydrological, biophysical, and technological hazards: analysis, preparedness, and mitigation. May be taught concurrently with GRY 625. Cannot receive credit for both GRY 625 and GRY 525. Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: ~~Spring~~ **Upon demand**

Complete New Catalog Information

GRY 525 Environmental Hazards

Prerequisite: GRY 142 or both GRY 135 and GLG 110.

Identification, recognition, and impact of hazards. Physical exposure to hazards and human vulnerability in LDCs and MDCs. Disaster trends and patterns. Behavioral and structural paradigms of hazards. EM-DAT: international disaster database. Statistical methods used in risk assessments. Risk perception, communication, and disaster management. Tectonic, mass movement, atmospheric, hydrological, biophysical, and technological hazards: analysis, preparedness, and mitigation. May be taught concurrently with GRY 625. Cannot receive credit for both GRY 625 and GRY 525. Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: Upon demand

What is changing? Check all boxes that apply.

- Course Deletion Course Code Course Number Title Prerequisite
 Credit Hours/Contact Hours Periodicity Description

Reason for Proposed Change or Deletion

We do not currently have the staff necessary to offer this course on a regular basis.

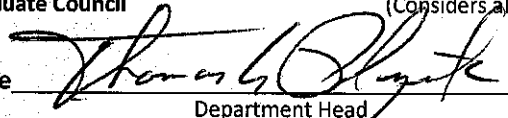
How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature 
Department Head

Date 3/3/2015

(Routing on Reverse Side)

FS Program Change - 10/8/2013

(14)

Missouri State University
Curricular Proposal Course Change or Deletion

Department Geography, Geology & Planning Date March 3, 2015

Check one: This is a change to an existing COURSE
 an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number GRY 625 Course Title Environmental Hazards

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

GRY 625 Environmental Hazards

Recommended Prerequisite: GRY 142 or both GRY 135 and GLG 110.

Identification, recognition, and impact of hazards. Physical exposure to hazards and human vulnerability in LDCs and MDCs. Disaster trends and patterns. Behavioral and structural paradigms of hazards. EM-DAT: international disaster database. Statistical methods used in risk assessments. Risk perception, communication, and disaster management. Tectonic, mass movement, atmospheric, hydrological, biophysical, and technological hazards: analysis, preparedness, and mitigation. May be taught concurrently with GRY 525. Cannot receive credit for both GRY 525 and GRY 625. Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: **Spring Upon demand**

Complete New Catalog Information

GRY 625 Environmental Hazards

Recommended Prerequisite: GRY 142 or both GRY 135 and GLG 110.

Identification, recognition, and impact of hazards. Physical exposure to hazards and human vulnerability in LDCs and MDCs. Disaster trends and patterns. Behavioral and structural paradigms of hazards. EM-DAT: international disaster database. Statistical methods used in risk assessments. Risk perception, communication, and disaster management. Tectonic, mass movement, atmospheric, hydrological, biophysical, and technological hazards: analysis, preparedness, and mitigation. May be taught concurrently with GRY 525. Cannot receive credit for both GRY 525 and GRY 625. Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0 Typically offered: **Upon demand**

What is changing? Check all boxes that apply.

- Course Deletion Course Code Course Number Title Prerequisite
 Credit Hours/Contact Hours Periodicity Description

Reason for Proposed Change or Deletion

We do not currently have the staff necessary to offer this course on a regular basis.

How Did You Determine the Need For This Change or Deletion?

See above.

Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.

- College Council** (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)
*For information only
- Professional Education Committee** (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)
- Committee on General Education and Intercollegiate Programs** (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)
- Graduate Council** (Considers all 600-900 level course changes.)

Signature Thomas G. O'Leary
Department Head

Date 3/3/2015

(Routing on Reverse Side)

FS Program Change - 10/8/2013