

Ogden College of Science and Engineering
Western Kentucky University
Office of the Dean
745-6371

REPORT TO THE GRADUATE COUNCIL CURRICULUM COMMITTEE

DATE: March 8, 2017
FROM: Ogden College of Science and Engineering

Ogden College of Science and Engineering Committee Members: Dr. Fred DeGraves, Dr. John Khouryieh, Dr. Michael Smith, Dr. Eric Conte, Dr. Mustafa Atici, Dr. Shane Palmquist, Dr. David Keeling, Dr. Dominic Lanphier, Dr. Sanju Gupta, Dr. Sharon Mutter

Chair: Dr. Cathleen Webb
Guests: Stephanie Sieggreen, Director of ISO
Toni Dye, Assistant Director of ISO
Nick Haught, Assistant Director, Pathway Relations – WKU Pathways

The Ogden College of Science and Engineering submits the following item for consideration at the March Meeting.

Discussion with guests from ISO

Consent	Proposal to Delete a Course GEOG 424G, Weather Analysis and Forecasting Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOG 434G, Historic Preservation Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOG 462G, Geography of South America Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOG 467G, Geography of the Middle East Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOG 474G, Environmental Planning Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOG 501, Geoscience and Development Contact person: David Keeling, david.keeling@wku.edu, 5-4555

Consent	Proposal to Delete a Course GEOG 502, Geoscience Field Research Methods Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOG 539, Seminar in Atmospheric Modeling Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOL 420G, Geomorphology Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOL 460G, Sedimentation and Stratigraphy Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course GEOL 475G, Independent Topics/Geology Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Consent	Proposal to Delete a Course INED 568, Ceramics and Plastics Contact person: Mark Doggett, mark.doggett@wku.edu, 5-6951
Action	Proposal to Revise a Course AGRO 452G, Soil Microbiology Contact person: Becky Gilfillen, becky.gilfillen@wku.edu, 5-5970
Action	Proposal to Revise a Course AGRO 454G, Soil Management and Conservation Contact person: Becky Gilfillen, becky.gilfillen@wku.edu, 5-5970
Action	Proposal to Revise a Program Ref: 072, Geoscience Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Action	Proposal to Revise a Course GEOS 523, Urban GIS Applications Contact person: Jun Yan, jun.yan@wku.edu, 5-4555
Action	Proposal to Revise a Course GEOS 534, Historic Preservation Planning Contact person: David Keeling, david.keeling@wku.edu, 5-4555
Action	Proposal to Revise a Course GEOS 580, Seminar Urban Geography Contact person: David Keeling, david.keeling@wku.edu, 5-4555

Action	Proposal to Create a New Course CS 535, Cloud Computing Contact person: Jeff Galloway, jeffrey.galloway@wku.edu , 5-2859
--------	--

Members Present: Dr. Fred DeGraves, Dr. John Khouryieh, Dr. Mustafa Atici, Dr. Shane Palmquist, Dr. David Keeling, Dr. Dominic Lanphier, Dr. Sanju Gupta, Dr. Sharon Mutter

Dr. Cathleen Webb, Chair

Meeting was held via email

OLD BUSINESS

Mutter/Keeling made a motion to approve the minutes from November. Approved unanimously.

NEW BUSINESS

Consent Item

No consent items on the agenda

Action Agenda

Mutter/Keeling made a motion to approve the action items. Approved unanimously.

Proposal to Create a Certificate Program, Graduate Certificate in Biology

Proposal to Revise a Course, CHEM 516, Laboratory Investigations

Proposal to Revise a Course, CHEM 588, Research Proposal

Proposal to Revise a Program, Ref: 059, Chemistry Masters of Science Thesis Concentration

Proposal to Revise a Program, Research Intensive Thesis Concentration

Proposal to Create a New Course, CHEM 585, Research Proposal

Proposal to Create a New Course, PHYS 565, Optical Detection Methods of Biological and Chemical Agents

Members Present: Dr. Fred DeGraves, Dr. John Khouryieh, Dr. Mustafa Atici, Dr. Shane Palmquist, Dr. David Keeling, Dr. Dominic Lanphier, Dr. Sanju Gupta, Dr. Sharon Mutter

Dr. Cathleen Webb, Chair

Meeting was held via email

OLD BUSINESS

Mutter/Keeling made a motion to approve the minutes from November. Approved unanimously.

NEW BUSINESS

Consent Item

No consent items on the agenda

Action Agenda

Mutter/Keeling made a motion to approve the action items. Approved unanimously.

Proposal to Create a Certificate Program, Graduate Certificate in Biology

Proposal to Revise a Course, CHEM 516, Laboratory Investigations

Proposal to Revise a Course, CHEM 588, Research Proposal

Proposal to Revise a Program, Ref: 059, Chemistry Masters of Science Thesis Concentration

Proposal to Revise a Program, Research Intensive Thesis Concentration

Proposal to Create a New Course, CHEM 585, Research Proposal

Proposal to Create a New Course, PHYS 565, Optical Detection Methods of Biological and Chemical Agents

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: 2/24/2017

College, Department: Ogden College, Geography and Geology

Contact Person: Name, email, phone David Keeling david.keeling@wku.edu 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG 424G

1.2 Course title: Weather Analysis and Forecasting

2. Action (check one): suspend delete reactivate

3. Rationale: Content now embedded in GEOS 526

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG434G

1.2 Course title: Historic Preservation

2. Action (check one): _____ suspend X delete _____ reactivate

3. Rationale: Replaced by GEOS 534 Historic Preservation and Planning

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Graduate Curriculum Committee

College Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG462G

1.2 Course title: Geography of South America

2. Action (check one): suspend delete reactivate

3. Rationale: Replaced by GEOS 540 Advanced Regional Geography

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG467G

1.2 Course title: Geography of the Middle East

2. Action (check one): ___ suspend ___ delete ___ reactivate

3. Rationale: Replaced by GEOS 540 Advanced Regional Geography

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG 474G

1.2 Course title: Environmental Planning

2. Action (check one): suspend delete reactivate

3. Rationale: Replaced by GEOS 584 Advanced Environmental Planning

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG501

1.2 Course title: Geoscience and Development

2. Action (check one): suspend delete reactivate

3. Rationale: Replaced by GEOS 501

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG502

1.2 Course title: Geoscience Field Research Methods

2. Action (check one): suspend delete reactivate

3. Rationale: Replaced by GEOS 502

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: February 24, 2017

Ogden College, Department of Geography and Geology

Contact Person: David Keeling, david.keeling@wku.edu, 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOG539

1.2 Course title: Seminar in Atmospheric Modeling

2. Action (check one): suspend delete reactivate

3. Rationale: Replaced by GEOS 526

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: 2/24/2017

College, Department: Ogden College, Geography and Geology

Contact Person: Name, email, phone David Keeling david.keeling@wku.edu 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOL 420G

1.2 Course title: Geomorphology

2. Action (check one): suspend delete reactivate

3. Rationale: Content now embedded in GEOS 521

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: 2/24/2017

College, Department: Ogden College, Geography and Geology

Contact Person: Name, email, phone David Keeling david.keeling@wku.edu 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOL 460G

1.2 Course title: Sedimentation and Stratigraphy

2. Action (check one): suspend delete reactivate

3. Rationale: Undergraduate course restructured to GEOL 360

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Suspend/Delete/Reactivate
(Consent)**

Date: 2/24/2017

College, Department: Ogden College, Geography and Geology

Contact Person: Name, email, phone David Keeling david.keeling@wku.edu 5-4555

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: GEOL 475G

1.2 Course title: Independent Topics/Geology

2. Action (check one): ____ suspend delete _____ reactivate

3. Rationale: Replaced by GEOS 510 and GEOS 502

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Course - Delete
(Consent)**

Date: 1/19/17

Ogden College, Architectural and Manufacturing Sciences

Contact Person: Mark Doggett, mark.doggett@wku.edu, 270-745-6951

1. Identification of course or program:

1.1 Current course prefix (subject area) and number: INED 568

1.2 Course title: Ceramics and Plastics

2. Action (check one): _____ suspend delete _____ reactivate

3. Rationale: The course was last offered in 1989 as an industrial education course. There is currently no plan to offer it in the future.

4. Effect on programs or other departments: None

5. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

_____ 2/3/2017 _____

College Graduate Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Proposals to suspend, delete or reactivate a course require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Revise a Course
(Action)**

Date: January 20, 2017

College, Department: Ogden College of Science and Engineering, Department of Agriculture

Contact Person: Name, email, phone Becky Gilfillen, becky.gilfillen@wku.edu, (270-745-5970)

1. Identification of course

- 1.1 Course prefix (subject area) and number: AGRO 452G
- 1.2 Course title: Soil Microbiology

2. Proposed change(s):

- 2.1 course number: AGRO 552
- 2.2 course title:
- 2.3 credit hours:
- 2.4 grade type:
- 2.5 prerequisites:
- 2.6 corequisites:
- 2.7 course description: (same) Soil microbial populations and systems and their influence on plant nutrition, soil organic matter, its decomposition and other soil microbial biochemical processes are presented.
- 2.8 other:

3. Rationale for revision of course: AGRO 452G is one of several 400G-level courses the Department of Agriculture proposes to change to 500-level status. Since course content is taught at the 500-level, reflection of that level in the course number is warranted.

4. Term of implementation: Fall 2017

5. Dates of committee approvals:

Department

2/2/2017

College Curriculum Committee

Professional Education Council (if applicable)

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Course revision proposals require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Revise a Course
(Action)**

Date: January 20, 2017

College, Department: Ogden College of Science and Engineering, Department of Agriculture

Contact Person: Name, email, phone Becky Gilfillen, becky.gilfillen@wku.edu, (270)745-5970

1. Identification of course

- 1.1 Course prefix (subject area) and number: AGRO 454G
- 1.2 Course title: Soil Management and Conservation

2. Proposed change(s):

- 2.1 course number: AGRO 554
- 2.2 course title:
- 2.3 credit hours:
- 2.4 grade type:
- 2.5 prerequisites:
- 2.6 corequisites:
- 2.7 course description: (no change) Economic utilization of land for agricultural, recreation and public purposes based on location and capability characteristics; interpretation and application of soil survey information for best interests in crop production, conservation, public and industrial use; practice in designing land use maps are stressed
- 2.8 other:

3. Rationale for revision of course: AGRO 454G is one of several 400G-level courses the Department of Agriculture proposes to change to 500-level status. Since course content is taught at the 500-level, reflection of that level in the course number is warranted.

4. Term of implementation: Fall 2017

5. Dates of committee approvals:

Department

2/2/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Course revision proposals require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Revise a Program
(Action)**

Date: February 24, 2017
 Ogden College of Science and Engineering
 Department of Geography and Geology
 Contact Person: David Keeling david.keeling@wku.edu 5-4555

- 1. Identification of program:**
 1.1 Reference number: 072
 1.2 Program title: Geoscience

- 2. Proposed change(s):**
 2.1 title:
 2.2 admission criteria:
 2.3 curriculum: Revision
 2.4 other:

3. Detailed program description:

Existing Program	Revised Program
<p>Admission Requirements: * GRE score, with a minimum 3.5 score on the GRE Analytical Writing component. * 3.0 overall undergraduate GPA. * Minimum of 18 hours of science courses at the undergraduate level, preferably in the geosciences. * One-page statement of research interests. * Written evidence of an agreement from a graduate faculty member in the Department of Geography and Geology willing to supervise the proposed research project. * Passing grade (C or higher) in appropriate undergraduate coursework to support the thesis research program. For example, students pursuing a thesis project in GIS-related topics are required to have passed an introductory GIS course and a Spatial Data Analysis course at the undergraduate level. Students should take preparatory courses in the summer semester before joining the Geoscience program if they have not previously taken these courses. If taken as a graduate student, a grade of "B" or better is</p>	<p>Admission Requirements: * GRE score, with a minimum 3.5 score on the GRE Analytical Writing component. * 3.0 overall undergraduate GPA. * Minimum of 18 hours of science courses at the undergraduate level, preferably in the geosciences. * One-page statement of research interests. * Written evidence of an agreement from a graduate faculty member in the Department of Geography and Geology willing to supervise the proposed research project. * Passing grade (C or higher) in appropriate undergraduate coursework to support the thesis research program. For example, students pursuing a thesis project in GIS-related topics are required to have passed an introductory GIS course and a Spatial Data Analysis course at the undergraduate level. Students should take preparatory courses in the summer semester before joining the Geoscience program if they have not previously taken these courses. If taken</p>

required. Students should consult with their proposed thesis advisor on appropriate preparation coursework before full admission is granted.

<u>Program Core</u>	15 hours
GEOS 500 Geoscience Research	4
GEOS 502 Research Methods	1
GEOS 520 Geo-Stats-Methods	4
GEOS 599 Research Thesis	6

Concentration Electives** 15 hours

15 hours of graduate coursework selected from the following electives and approved by the thesis director. ~~Students may select appropriate courses from any of the course areas:~~

Physical Science:

GEOG 502 Research Methods	3
GEOS 510 Research Topics	3
GEOS 515 Remote Sensing	4
GEOS 521 Geomorphology	3
GEOS 559 Hydrological Fluid	3
GEOS 566 Karst Geoscience	3
GEOS 595 Geoscience Practicum	3
GEOG 427G Water Resources	3
GEOG 428G Applied Groundwater	3
GEOL 4xxG Any Geology course	3

Cultural Science:

GEOS 501 Geoscience Development	3
GEOS 507 Concepts/Skills for Teach	3
GEOS 510 Research Topics	3
GEOS 525 Political Geography	3
GEOS 530 Cultural Geography	3
GEOS 534 Historic Preservation	3
GEOS 540 Regional Geography	3
GEOS 550 Economic Geography	3
GEOS 580 Urban Geography	3
GEOS 585 Population Geography	3
GEOS 595 Geoscience Practicum	3

as a graduate student, a grade of "B" or better is required. Students should consult with their proposed thesis advisor on appropriate preparation coursework before full admission is granted.

Program Core	15 hours
GEOS 500 Research & Literacy	4
GEOS 502 Research Methods	1
GEOS 520 Statistical Methods	4
(or other approved methods course)	
GEOS 599 Research Thesis	6

Concentration Electives** 15 hours

15 hours of graduate coursework selected from the following electives **appropriate to support the thesis research project** and approved by the thesis director. **Students may select appropriate courses from the list below:**

GEOG 451G Geography of Kentucky	3
GEOL 415G Environmental Geology	3
GEOL 440G Hydrogeology	3
GEOL 445G Aqueous Geochemistry	3
GEOL 465G Geophysics	3
GEOL 470G Tectonics	3
GEOL 485G Fossil Fuels	3

Note that no more than 9 hours of "G" courses can be used in the M.S. Geoscience program.

GEOL 511 Dynamic Earth	3
GEOS 501 Geoscience & Development	3
GEOS 502 Research Methods	3
GEOS 505 Biogeography	3
GEOS 506 Environmental Seminar	1
GEOS 507 Geography for Teachers	3
GEOS 510 Research Topics	1-3
(Repeatable for a maximum of 6 hours)	
GEOS 515 Remote Sensing Apps	4
GEOS 517 Spatial Databases	3
GEOS 521 Seminar Geomorphology	3

GEOG 451G Geography Kentucky	3	GEOS 522 Seminar Physical Climatology	3
G.I. Science:		GEOS 523 Geoprocessing and GIS Apps	4
GEOS 510 Research Topics	3	GEOS 524 Meteorology for Teachers	3
GEOS 515 Remote Sensing	4	GEOS 525 Seminar Political Geography	3
GEOS 517 Spatial Databases	3	GEOS 526 Applied Met and Climate	3
GEOS 523 Urban GIS Applications	4	GEOS 530 Seminar Cultural Geography	3
GEOS 577 Special Topics GIS	3	GEOS 531 Seminar Dynamic Met I	3
GEOS 584 Advanced Planning	3	GEOS 533 Seminar Synoptic Met	3
GEOS 590 Experimental Design	3	GEOS 534 Historic Preservation Planning	3
GEOS 595 Geoscience Practicum	3	GEOS 535 Seminar Dynamic Met II	3
GEOG 417G GIS Analysis	3	GEOS 537 Seminar Mesoscale Met	3
GEOG 419G GIS Programming	3	GEOS 538 Seminar Physical Met	3
Environmental Science:		GEOS 539 Seminar Atmospheric Model	3
GEOS 505 Biogeography	3	GEOS 540 Advanced Regional Geog	3
GEOS 506 Environment Seminar	3	GEOS 543 Environmental Sci Concepts	3
GEOS 510 Research Topics	3	GEOS 544 Practical Environment Ethics	3
GEOS 515 Remote Sensing	4	GEOS 550 Advanced Economic Geog	3
GEOS 543 Env Science Concepts	3	GEOS 555 Global Climate Change	3
GEOS 544 Environmental Ethics	3	GEOS 559 Hydrological Fluid Dynamics	3
GEOS 571 Quality of Life	3	GEOS 566 Karst Geoscience	3
GEOS 587 Env. Law and Policy	3	GEOS 571 Applied Nat. Res. Management	3
GEOS 595 Geoscience Practicum	3	GEOS 575 GIS Analysis and Modeling	3
GEOG 474G Environment Planning	3	GEOS 576 GIS Programming	3
GEOL 415G Environmental Geology	3	GEOS 577 Special Topics in GIS	3
Climate Science:		GEOS 580 Seminar Urban Geography	3
GEOS 510 Research Topics	3	GEOS 584 Applied Environment Planning	3
GEOS 515 Remote Sensing	4	GEOS 585 Advanced Population Geog	3
GEOS 522 Physical Climatology	3	GEOS 587 Environmental Law & Policy	3
GEOS 533 Synoptic Meteorology	3	GEOS 590 Experimental Design	3
GEOS 535 Dynamic Meteorology II	3	GEOS 595 Practicum	1-6
GEOS 537 Mesoscale Meteorology	3	(Repeatable for a maximum of 6 hrs)	
GEOS 538 Physical Meteorology	3	GEOS 600 Matriculation	1
GEOS 539 Atmospheric Modeling	3	(Repeatable for a maximum of 6 hrs)	
GEOS 555 Global Climate Change	3		
GEOS 595 Geoscience Practicum	3		
GEOG 424G Weather Analysis	3		
** A maximum of six hours of advisor-approved electives that are consistent with the student's <u>Research Focus</u> may be selected from other departments.		** A maximum of six hours of advisor-approved electives that are consistent with the student's Research Focus may be selected from other departments.	
PROGRAM TOTAL	30 hours	PROGRAM TOTAL	30 hours

4. **Rationale:** Removing the areas of concentration and requiring students to select 15 hours of electives in consultation with the thesis advisor will eliminate multiple appeals for substitutions. As an interdisciplinary program, most students take courses across the sub-disciplinary specialty areas. This change will also allow the graduate faculty to manage graduate-course offerings and graduate workload more efficiently and effectively. In addition, allowing students to select a statistical methods course from another department (Sociology, Chemistry, Math, etc.) that better supports their research methodology makes sense for those students who do not need extensive GIS applications in their research.

5. **Proposed term for implementation:** Spring 2018

6. **Dates of committee approvals:**

Department	<u>2/24/2017</u>
College Curriculum Committee	_____
Graduate Council Curriculum Committee	_____
Graduate Council	_____
University Senate	_____

**Revise a Course
(Action)**

Date: February 24, 2017

Ogden College of Science and Engineering, Department of Geography and Geology

Contact Person: Jun Yan, jun.yan@wku.edu, 5-4555

1. Identification of course

- 1.1 Course prefix (subject area) and number: GEOS 523
- 1.2 Course title: Urban GIS Applications

2. Proposed change(s):

- 2.1 course number:
- 2.2 course title: Geoprocessing and GIS Applications
- 2.3 credit hours:
- 2.4 grade type:
- 2.5 prerequisites:
- 2.6 corequisites:
- 2.7 course description:
- 2.8 other:

3. Rationale for revision of course: The course covers how GIS can be used to solve a variety of real-world problems. Urban applications are only a part of the course discussions. The current course title is too narrow and does not describe all course content.

4. Term of implementation: Winter 2018

5. Dates of committee approvals:

Department of Geography and Geology
College Curriculum Committee
Graduate Council Curriculum Committee
Graduate Council
University Senate

2/24/2017

**Course revision proposals require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Revise a Course
(Action)**

Date: February 24, 2017

Ogden College of Science and Engineering, Department of Geography and Geology

Contact Person: David Keeling david.keeling@wku.edu 5-4555

1. Identification of course

- 1.1 Course prefix (subject area) and number: GEOS 534
- 1.2 Course title: Historic Preservation Planning

2. Proposed change(s):

- 2.1 course number:
- 2.2 course title:
- 2.3 credit hours:
- 2.4 grade type:
- 2.5 prerequisites: None
- 2.6 corequisites:
- 2.7 course description:
- 2.8 other:

3. Rationale for revision of course: Removing prerequisite of GEOG 434G, which has been deleted.

4. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department	2/24/2017
College Curriculum Committee	_____
Graduate Council Curriculum Committee	_____
Graduate Council	_____
University Senate	_____

**Course revision proposals require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Revise a Course
(Action)**

Date: February 24, 2017

Ogden College of Science and Engineering, Department of Geography and Geology

Contact Person: David Keeling david.keeling@wku.edu 5-4555

1. Identification of course

- 1.1 Course prefix (subject area) and number: GEOS 580
- 1.2 Course title: SEMINAR URBAN GEOGRAPHY

2. Proposed change(s):

- 2.1 course number:
- 2.2 course title:
- 2.3 credit hours:
- 2.4 grade type:
- 2.5 prerequisites:
- 2.6 corequisites:
- 2.7 course description: Analysis of problems faced by global cities
- 2.8 other:

3. Rationale for revision of course: Focusing only on American cities limited the scope and extent of the course. Including examples from global cities makes the course more valuable and applicable.

4. Term of implementation: Spring 2018

5. Dates of committee approvals:

Department

2/24/2017

College Curriculum Committee

Graduate Council Curriculum Committee

Graduate Council

University Senate

**Course revision proposals require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*

**Create a New Course
(Action)**

Date:8/31/2016

College: Ogden College of Science & Engineering

Department: Computer Science

Contact Person: Jeffrey Michael Galloway, jeffrey.galloway@wku.edu, 5-2859

1. Proposed course:

- 1.1 Course prefix (subject area) and number: CS 535
- 1.2 Course title: Cloud Computing
- 1.3 Abbreviated course title: Cloud Computing
(maximum of 30 characters or spaces)
- 1.4 Credit hours: 3
- 1.5 Variable credit : No
- 1.6 Repeatable: No
- 1.7 Grade type: Standard Letter Grade
- 1.8 Prerequisites: Graduate Status
- 1.9 Corequisites: None
- 1.10 Course description: This course will provide insight on the current trends of local and public cloud computing systems. Three distinct design layers will be covered: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). Topics include, but are not limited to, cloud computing architectures, virtual resource management, green clouds, data management, and user interface.
- 1.11 Course equivalency: None

2. Rationale:

- 2.1 Reason for developing the proposed course:
Cloud computing has rapidly become the most used architecture of major public resource vendors such as Amazon, Microsoft, and Google. Cloud architectures provide flexibility, scalability, and autonomous resource provisioning based on user demands. These architectures also allow higher utilization of current hardware due to their multitenant nature. Some current cloud computing statistics:
 - \$180 billion spent by users on cloud technologies, so far.
 - \$80 billion in cloud equipment, so far.
 - Cloud persistent storage among top resources wanted by industry/users.
 - 45% growth predicted in cloud technologies over next 5 years.
 - Over 65% of industry utilize cloud technologies in some way.
 - Over 50% of industry hosts sensitive data in the cloud.
 - Data center traffic forecast to increase over 8 ZB per year by 2017.
 - 59% of all new cloud computing services originates in North America.

This course will serve as a fundamental course in the interdisciplinary and prominent field of cloud computing. Students will learn to combine tools and techniques from many computer science fields such as computer

architecture, computer networking, operating systems, software engineering, and web/user interface development.

- 2.2 Relationship of the proposed course to other course at WKU:
Content covered in the new course will rely on background areas such as CS 360 software engineering, CS 381 computer networks, CS 325 computer architecture, CS 425 operating systems, and CS 315 introduction to Unix. However, this new course focuses on combining these fields for generation of IaaS, PaaS, and SaaS cloud architectures and applications.
- 2.3 Relationship of the proposed course offered in other departments:
There is currently no similar course offered by in other departments
- 2.4 Relationship of the proposed course offered in other institutions:
A number of institutions offer undergraduate and graduate courses with similar topics.
University of Alabama offers a graduate course on cloud computing:
CS 691 Cloud Computing.
Carnegie Mellon University offers a graduate course on cloud computing:
CS 15-319 Cloud Computing
University of Texas at Dallas offers a graduate course on cloud computing: CS 6343 Cloud Computing

3. Discussion of proposed course:

- 3.1 Schedule type: C
- 3.2 Learning Outcomes:
By the end of the course, students should understand concepts of:
- Infrastructure-as-a-Service (IaaS)
 - Platform-as-a-Service (PaaS)
 - Software-as-a-Service (SaaS)
 - Public and Local Cloud Architectures
 - Open Source Clouds (IaaS): OpenStack, CloudStack, Eucalyptus, OpenNebula
 - PaaS: Map Reduce Architecture, Hadoop
 - Virtualized Resource Management
 - Resource Replication and Interfacing
 - Virtual Machine Load Balancing and Consolidation
 - Green Clouds
- 3.3 Content outline:
- Understanding Cloud Computing
 - What is cloud computing – architecture levels
 - Infrastructure-as-a-Service
 - Methods and techniques for resource sharing
 - Hypervisors and virtualization
 - Public and Private IaaS architectures
 - Platform-as-a-Service
 - Software and virtual appliance frameworks
 - Software deployment
 - Case studies
 - Software-as-a-Service

- User interface
- Application development
- Big data and data storage
 - Big data technology
 - Manipulation of data using Hadoop and MapReduce
 - Data availability and replication techniques

3.4 Student expectations and requirements: basic knowledge of computer architecture, socket programming, OS fundamentals, and software development.

3.5 Tentative texts and course materials:
 Cloud Computing: Architected. John Rhoton and Risto Haukioja
 ISBN: 9780956355614

4. Budget implications:

4.1 Proposed method of staffing: Current staffing is sufficient

4.2 Special equipment, materials, or library resources needed: Cloud/Cluster equipment, such as non-production level compute, storage, and admin servers.
 Network equipment: switch, router.

5. Term for implementation: Spring 2018

6. Dates of committee approvals:

Department	02/23/2016
College Graduate Curriculum Committee	_____
Graduate Council Curriculum Committee	_____
Graduate Council	_____
University Senate	_____

***New course proposals require a Course Inventory Form be submitted by the College Dean's office to the Office of the Registrar.*