ACADEMIC PROGRAMS ROUTING FORM

New Program  
Revised Program  

Program Announcement/Letter of Intent must be previously submitted

Complete instructions for the use of this form are provided on the reverse side. If you have any questions, please contact the Office of Academic Affairs at extension 2232.

PART I: To be completed by Department. After completing Part I, forward form to the appropriate Dean. Note - if academic program is in the School of Education, form is sent to the Faculty Council Chair for endorsement before going to the Dean's office.

RA Geology  11-9-2018
New/Revised Program Name  Major/Minor Code (revised programs)  Date

Department/Program Chair  Contact Person

RA Geology  11-9-2018

Required for School of Education/School of Business programs ONLY

Endorse concept: YES  NO  
Faculty Council/ Curriculum Chair's Signature  Date

Part II: To be completed by the appropriate Dean (see reverse). After completing, forward form to the Provost.

Endorse: YES  NO  
Dean's Signature  Date

Part III: To be completed by Provost (see reverse). After completing, forward form along with all attachments back to the Department.

Endorse: YES  NO  
Provost's Signature  Date

Part IV: See reverse for instructions. After completing Part IV, forward form to the Faculty Assembly Chair.

UNDERGRADUATE PROGRAMS

Endorse: YES  NO  
Academic Policies Council Chair's Signature  Date

Endorse: YES  NO  
Priorities and Planning Council Chair's Signature  Date

GRADUATE PROGRAMS

Endorse: YES  NO  
Dean of Graduate Studies and Research's Signature  Date

Endorse: YES  NO  
Graduate Council Chair's Signature  Date

Endorse: YES  NO  
Priorities and Planning Council Chair's Signature  Date

Part V: To be completed by Faculty Assembly Chair.

Approve: YES  NO  
Faculty Assembly Chair's Signature  Date

Action taken:  

ACADEMIC PROGRAMS ROUTING FORM

New Program ______ Reviser Program X

Program Announcement/Letter of Intent must be previously submitted

Complete instructions for the use of this form are provided on the reverse side. If you have any questions, please contact the Office of Academic Affairs at extension 2232.

PART I: To be completed by Department. After completing Part I, forward form to the appropriate Dean. Note - if academic program is in the School of Education, form is sent to the Faculty Council Chair for endorsement before going to the Dean's office.

B.S. Geology, Track I 116 A 11-9-2018
New/Revised Program Name Major/Minor Code (revised programs) Date

Steven Skubis David Vincent
Department/Program Chair Contact Person

Rachel Lee
Curriculum/Program Representative Date

Required for School of Education/School of Business programs ONLY

Endorse concept: YES NO Faculty Council/ Curriculum Chair's Signature Date

Part II: To be completed by the appropriate Dean (see reverse). After completing, forward form to the Provost.

Endorse YES NO Dean's Signature Date

Part III: To be completed by Provost (see reverse). After completing, forward form along with all attachments back to the Department.

Endorse YES NO Provost's Signature Date

Part IV: See reverse for instructions. After completing Part IV, forward form to the Faculty Assembly Chair.

UNDERGRADUATE PROGRAMS

Endorse YES NO Academic Policies Council Chair's Signature Date

Endorse YES NO Priorities and Planning Council Chair's Signature Date

GRADUATE PROGRAMS

Endorse YES NO Dean of Graduate Studies and Research's Signature Date

Endorse YES NO Graduate Council Chair's Signature Date

Endorse YES NO Priorities and Planning Council Chair's Signature Date

Part V: To be completed by Faculty Assembly Chair.

Approve: YES NO Faculty Assembly Chair's Signature Date

Action taken: 
ACADEMIC PROGRAMS ROUTING FORM

New Program _____ Revised Program X

Program Announcement/Letter of Intent must be previously submitted

Complete instructions for the use of this form are provided on the reverse side. If you have any questions, please contact the Office of Academic Affairs at extension 2232.

PART I: To be completed by Department. After completing Part I, forward form to the appropriate Dean. Note - if academic program is in the School of Education, form is sent to the Faculty Council Chair for endorsement before going to the Dean's office.

B.S. Geology, Track 2 11613 11-9-18
New/Revised Program Name Major/Minor Code (revised programs) Date

Steven Skubis David Valenti
Department/Program Chair Contact Person
Rachel Lee 11-9-2018
Curriculum/Program Representative Date

Required for School of Education/School of Business programs ONLY

Endorse concept: YES NO Faculty Council/ Curriculum Chair's Signature Date

Part II: To be completed by the appropriate Dean (see reverse). After completing, forward form to the Provost.

Endorse YES NO Dean's Signature Date

Part III: To be completed by Provost (see reverse). After completing, forward form along with all attachments back to the Department.

Endorse YES NO Provost's Signature Date

Part IV: See reverse for instructions. After completing Part IV, forward form to the Faculty Assembly Chair.

UNDERGRADUATE PROGRAMS

Endorse YES NO Academic Policies Council Chair's Signature Date

Endorse YES NO Priorities and Planning Council Chair's Signature Date

GRADUATE PROGRAMS

Endorse YES NO Dean of Graduate Studies and Research's Signature Date

Endorse YES NO Graduate Council Chair's Signature Date

Endorse YES NO Priorities and Planning Council Chair's Signature Date

Part V: To be completed by Faculty Assembly Chair.

Approve: YES NO Faculty Assembly Chair's Signature Date

Action taken: ________________________________
ACADEMIC PROGRAMS ROUTING FORM

New Program ______ Revised Program ______

Program Announcement/Letter of Intent must be previously submitted

Complete instructions for the use of this form are provided on the reverse side. If you have any questions, please contact the Office of Academic Affairs at extension 2232.

PART I: To be completed by Department. After completing Part I, forward form to the appropriate Dean. Note - if academic program is in the School of Education, form is sent to the Faculty Council Chair for endorsement before going to the Dean’s office.

New programs must submit a writing plan, oral competency plan, critical thinking infusion and assessment plan, and a computer and information literacy infusion plan to the General Education Council for review and approval.

Revised programs need to indicate if the proposed revision will have an effect on one or more of the plans listed above:
Yes ______ No ______. (Not applicable to minors) If so, submit the revised plans to the General Education Council for review and approval.

Geology Minor

New/Revised Program Name: Steven Stokes

Major/Minor Code (revised programs): 575

Date: 11-9-2018

Department/Program Chair: Rachel Lee

Contact Person: David Valentine

Curriculum/Program Representative: Date: 11-9-2018

Required for School of Education/School of Business programs ONLY

Endorse concept: YES NO Faculty Council/ Curriculum Chair’s Signature Date

Part II: To be completed by the appropriate Dean (see reverse). After completing, forward form to the Provost.

Endorse: YES NO Dean’s Signature Date: 11/15/18

Part III: To be completed by Provost (see reverse). After completing, forward form along with all attachments back to the Department.

Endorse: YES NO Provost’s Signature Date: 5/7/18

Part IV: See reverse for instructions. After completing Part IV, forward form to the Faculty Assembly Chair.

UNDERGRADUATE PROGRAMS

Endorse: YES NO Academic Policies Council Chair’s Signature Date

Endorse: YES NO Priorities and Planning Council Chair’s Signature Date

Endorse: YES NO Gen Ed Council Chair’s Signature Date

GRADUATE PROGRAMS

Endorse: YES NO Dean of Graduate Studies and Research’s Signature Date

Endorse: YES NO Graduate Council Chair’s Signature Date

Endorse: YES NO Priorities and Planning Council Chair’s Signature Date

Part V: To be completed by Faculty Assembly Chair.

Approve: YES NO Faculty Assembly Chair’s Signature Date

Action taken:
Proposal to modify the curriculum for the B.A. & B.S. & Minor Geology programs  
Department of Atmospheric and Geological Sciences

--All revised program proposals (major or minor) must include: 1. Side by side list of old and new program requirements 2. Rationale for each revision or addition 3. Changes in resources and rationale for changes.

Introduction

One year ago, New York State implemented a new law requiring geologists to hold a professional license (PG), like other technical fields such as architecture, engineering, nursing, social work, etc. (http://www.op.nysed.gov/prof/). The new geology license law took effect in November, 2016 and was first implemented in the fall of 2017. To be licensed as a professional geologist in New York State the candidate must meet education, examination and experience requirements. New York State adopted the national examination for geology content (ASBOG).

With the proposed changes to the Geology BS, BA and Minor programs, there will be no change in the resources to deliver the programs. All lecture rooms, laboratory spaces, and library and computing resources that are currently used, will continue to be used at the same level. The proposed changes can be generalized as 1) addition of new courses; 3) addition of lab components to some courses, and 2) shuffling of courses in the current curriculum.

Proposed Changes to Geology BS, Track 1

The proposed changes to the B.S. Geology, Track 1, degree program meets most education requirements for NYS PG. However, the proposed changes update the curriculum to ensure that all educational requirements will be met.

1. Add a lab component to GEO 450, thereby increasing the credits from 3 to 4.

Geomorphology (GEO 450) was added to the core curriculum two years ago to be in-line with the ASBOG examination requirements. However, a lab component was not included at that time. The addition of the lab to GEO 450 is integral to the course because it allows students an opportunity for practical application of course material. The lab involves a mixture of computer-based exercises in mapping and quantitative data analysis, in addition to a variety of field activities where students collect data, learn geomorphic observation skills and look at landscape features. The practical application of geomorphology concepts will greatly support overall program content related to surficial geology and sure up overall student experience in preparation for the ASBOG professional geology content examination.

Historically, the 3 credit version of GEO 450 included a laboratory and field component, but the faculty instructing these components never received any instructional credit. In effect, they did it off load. When the current position was advertised, it was made very clear to applicants that the geology curriculum needed to correct this problem by adding a one credit lab section to geomorphology thereby raising the course to 4 credits. Justin Stroup was hired and agreed to carry out that correction. The lab is justified because the curriculum needs the embedded
experience in surface geology process, where most graduates end up employed. Therefore, the addition of the lab has decreased instruction in general education, but there has not been a decrease in the number of general education seats because large sections of GEO 115 have been scheduled. Multiple smaller sections of this course, or multiple sections of GEO 100 (another general education option that is offered by geology) were routinely offered in the past. The geology schedule includes larger sections of these course to offset “lost seats” related to the addition to the upper level geology lab for GEO 450 among other courses that are now being offered.


Currently the geology major can fulfill the required 3 credit capstone by completing independent study (GEO 399 or GEO 499) or completing an internship (GST 498). With the increase in number of geology majors and high turn-over of geology faculty, management of independent study projects has become very difficult for the small number of permanent geology faculty. Geology faculty routinely manage upward of 10 independent study students per semester, but they receive zero instructional credit or release time for managing these student projects and senior theses. This problem has existed for more than 20 years, but has been compounded by the increase in the number of geology majors since the opening of Shineman Science Center, turn-over of faculty, and one faculty line remaining in temporary status indefinitely. For many years, the geology faculty have asked for administrative support, such as release time or instructional credit for these activities, but the administration has ignored these requests. Therefore, to correct this problem we intend to implement the same model that is used in other science majors to manage high numbers of capstone student research projects with the addition of a Geoscience Research (3 credits) course option to the geology curriculum. With the addition of this course, it will enable the geology faculty to better manage high numbers of capstone projects and provide instruction within the normal 12 contact hour teaching load.

3. Total change in credit hours is 72-76 to 73-77.

The total change in credit hours reflects changes to the core curriculum with the addition of the one credit lab to GEO 450.

<table>
<thead>
<tr>
<th>Current BS Geology Program - Track I</th>
<th>Proposed Changes to BS Geology Program-Track I</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geology BS Track 1 (72-76 cr)</strong></td>
<td><strong>Geology BS Track 1 (73-77 cr)</strong></td>
</tr>
<tr>
<td>A. Core requirements (40 cr)</td>
<td>A. Core requirements (41 cr)</td>
</tr>
<tr>
<td><strong>One of the following courses:</strong></td>
<td><strong>One of the following courses:</strong></td>
</tr>
<tr>
<td>GEO 100 Physical Geology</td>
<td>GEO 100 Physical Geology</td>
</tr>
<tr>
<td>GEO 115 Environmental Sustainability</td>
<td>GEO 115 Environmental Sustainability</td>
</tr>
<tr>
<td>OCE 100 Oceanography</td>
<td>OCE 100 Oceanography</td>
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<tr>
<td>GEO 101 Physical Geology Lab</td>
<td>GEO 101 Physical Geology Lab</td>
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<tr>
<td>GEO 200 Historical Geology</td>
<td>GEO 200 Historical Geology</td>
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<tr>
<td>GEO 201 Historical Geology Lab</td>
<td>GEO 201 Historical Geology Lab</td>
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<tr>
<td>GEO 310 Mineralogy</td>
<td>GEO 310 Mineralogy</td>
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<tr>
<td>GEO 326 Geographic Information Systems</td>
<td>GEO 326 Geographic Information Systems</td>
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<tr>
<td>GEO 330 Structural Geology</td>
<td>GEO 330 Structural Geology</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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</tr>
<tr>
<td>GEO 416</td>
<td>Petrology</td>
</tr>
<tr>
<td>GEO 420</td>
<td>Sedimentation and Stratigraphy</td>
</tr>
<tr>
<td>GEO 450</td>
<td>Geomorphology (3 credits)</td>
</tr>
<tr>
<td>GEO 481</td>
<td>Field Geology</td>
</tr>
<tr>
<td>GEOS 495</td>
<td>Geosience Research</td>
</tr>
<tr>
<td>GEO 399</td>
<td>Independent Study</td>
</tr>
<tr>
<td>GEO 499</td>
<td>Independent Study</td>
</tr>
<tr>
<td>GST 498</td>
<td>Internship</td>
</tr>
</tbody>
</table>

**B. Elective requirement - Select three 300 or 400 level GEO or GCH courses excluding**

- GEO 305, GEO 306 and GEO 315 (9-12)
- GCH 436 Solid Earth Geochemistry
- GCH 437 Earth Surface Geochemistry
- GCH 438 Isotope Geochemistry
- GEO 305 Fire and Ice
- GEO 340 Geophysics
- GEO 350 Introduction to Remote Sensing
- GEO 435 Volcanology
- GEO 410 Optical Mineralogy
- GEO 430 Hydrogeology
- GEO 440 Invertebrate Paleontology
- GEO 470 Exploration Geology
- GEO 480 Tectonics
- GEO 486 Field Techniques

**C. Cognate requirements (23-24 cr)**

- CHE 111 General Chemistry I
- CHE 212 General Chemistry II
- MAT 210 Calculus I

**Select one**

- MAT 220 Calculus II
- MAT 318 Statistics for Sciences

**Select one**

- PHY 111 College Physics I
- PHY 112 General University Physics

**Select one**

- PHY 212 College Physics II
- PHY 213 General University Physics II

Proposed Changes to Geology BS, Track 2 (Environmental Earth Sciences)
The current curriculum has three categories of electives: 1) a geology course with emphasis in near surface geology; 2) an Intellectual Issues course with emphasis in environmental science; 3) three courses from a list of science courses with emphasis in environmental or fundamental science in some field outside of geology.

1. Addition of GEO 326 (Geographic Information Systems) to the core curriculum.

Based on education standards related to the New York State Professional Geology license, and the ASBOG content exam, it is very important to include GEO 326 to the core curriculum. All graduates in geology, and especially those that will work in the environmental industry, need a solid foundation in the application of Geographic Information Systems in geology. Employers are looking for this skill, including consultants, engineering and environmental firms, and government organizations. Equally important is that GIS is applied across all disciplines in geology and is heavily used in graduate programs. To keep pace with other geology programs, it is important that this course be moved from the elective list to the required core of the degree program. This change was already made to BS Geology Track 1 two years ago, for the same reasons.

2. Merge the first and second elective categories into one and require student to pick 1 course in geology and 3 other courses from the entire list. There is a reduction of 1 elective course with this proposed change.

Since the creation of the BS Geology, Track II, Environmental Earth Sciences degree program, it has grown very difficult for the majors to enroll in many of the elective options due to scheduling across many departments and programs. In the spirit of diverse science electives, it is proposed here to do away with two elective categories and to permit students explore elective topics based on their personal interests and under the direction from faculty advisers. With this proposed change, there will be no change in the number of required courses in the curriculum.

3. The required course of Hydrogeology (GEO 430) will add a lab component thereby increasing the credits from 3 to 4.

Hydrogeology (GEO 430) is a fundamental part of the core curriculum and greatly supports the preparation of graduates for the ASBOG examination requirements. However, a lab component was not part of this course. The addition of the lab to GEO 430 is integral to the course because it allows students an opportunity for practical application of course material. The lab involves a mixture of computer-based exercises in mapping and quantitative data analysis, in addition to a variety of field activities where students collect data, visit active field sites, participate in water well drilling and analysis, and overall acquire hands-on experience related to hydrogeology. The practical application of hydrogeology concepts will greatly support overall program content related to surficial geology and sure up overall student experience in preparation for the ASBOG professional geology content examination.


Currently the geology major can fulfill the required 3 credit capstone by completing independent study (GEO 399 or GEO 499) or completing an internship (GST 498). With the increase in
number of geology majors, management of independent study projects has become very difficult for the small number of geology faculty. Geology faculty routinely manage upward of 10 independent study students per semester, but they receive zero instructional credit or release time for managing these student projects and senior theses. This problem has existed for more than 20 years, but has been compounded by the increase in the number of geology majors since the opening of Shineman Science Center. The geology faculty have asked for administrative support, such as release time or instructional credit for these activities, but the administration has ignored these requests. Therefore, to correct this problem we intend to implement the same model to manage high numbers of capstone student research projects with the addition of a Geoscience Research (3 credits) course option to the geology curriculum. With the addition of this course, it will enable the geology faculty to better manage high numbers of capstone projects and provide instructional within the normal 12 contact hour teaching load.

GEO 495 was recently approved and run for the first time in the Spring 2019. The addition of this option for the capstone experience corrects a very serious problem that has existed for almost two decades, as explained above. Since the capstone experience was instituted back in 2000, the geology faculty have directed scores of independent studies with the majors, receiving zero release time or instructional credit. Some geology faculty routinely advised 10 or more independent studies per semester for many years with no instructional credit. When the Dean of CLAS (all of them) were asked for support, we were instructed to develop a 3 credit research course and put it on the geology schedule. We resisted doing this for many years because it was difficult to predict the number of students per semester. But, with having to advise more than a dozen independent study projects per semester for the past several years, it was decided to follow the instructions of every CLAS Dean since it was first suggested by Sarah Varhau back in 2002. The GEO 495 course is modeled after other senior level research courses in the natural sciences that are used for capstone experience. If this capstone option is not approved with the proposed curricular changes, then the only other option is for the geology faculty to continue advising independent study projects via GEO 399, and continue to receive zero instructional credit, while other programs in the sciences continue to receive credit.

5. Total change in credit hours is 56-60 to 57-61.

The total change in credit hours reflects the addition of the Hydrogeology lab as explained in #3.

<table>
<thead>
<tr>
<th>Current BS Geology Program - Track II</th>
<th>Proposed Changes to BS Geology Program - Track II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology BS Track 2 (56-60 cr) - Current Status</td>
<td>Geology BS Track 2 (57-61 cr) - Proposed Changes</td>
</tr>
<tr>
<td>A. Core Requirements (26 cr)</td>
<td>A. Core Requirements (30 cr)</td>
</tr>
<tr>
<td><strong>Select one of the following three:</strong></td>
<td><strong>Select one of the following three:</strong></td>
</tr>
<tr>
<td>GEO 100 Physical Geology</td>
<td>GEO 100 Physical Geology</td>
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<tr>
<td>GEO 115 Environmental Sustainability</td>
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<tr>
<td>GEO 310 Mineralogy</td>
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<tr>
<td>GEO 330 Structural Geology</td>
<td>GEO 330 Structural Geology</td>
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<tr>
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<td>Course Title</td>
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</tr>
<tr>
<td>GEO 420</td>
<td>Sedimentation and Stratigraphy</td>
</tr>
<tr>
<td>GEO 430</td>
<td>Hydrogeology (3 cr)</td>
</tr>
<tr>
<td>GEO 399</td>
<td>Independent Study</td>
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<tr>
<td>GEO 486</td>
<td>Field Techniques</td>
</tr>
<tr>
<td>GST 303</td>
<td>Leadership in Your Field</td>
</tr>
</tbody>
</table>

Select one course from the following four:

Select one course from the following four:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 437</td>
<td>Earth Surface Geochemistry</td>
</tr>
<tr>
<td>GEO 325</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>GEO 340</td>
<td>Geophysics</td>
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<tr>
<td>GEO 350</td>
<td>Remote Sensing</td>
</tr>
<tr>
<td>GEO 399</td>
<td>Independent Study</td>
</tr>
<tr>
<td>GEO 450</td>
<td>Geomorphology</td>
</tr>
<tr>
<td>GEO 460</td>
<td>Engineering Geology</td>
</tr>
<tr>
<td>GEO 499</td>
<td>Independent Study</td>
</tr>
<tr>
<td>BIO 363</td>
<td>Great Lakes Environmental Issues</td>
</tr>
<tr>
<td>CHE 300</td>
<td>Environmental Science</td>
</tr>
<tr>
<td>MET 315</td>
<td>Weather Disasters</td>
</tr>
<tr>
<td>MET 320</td>
<td>Humans and Atmospheric Change</td>
</tr>
<tr>
<td>BIO 120</td>
<td>Molecular and Cellular Foundations</td>
</tr>
<tr>
<td>BIO 200</td>
<td>Human Impacts on the Environment</td>
</tr>
<tr>
<td>BIO 320</td>
<td>Introductory Ecology</td>
</tr>
<tr>
<td>BIO 400</td>
<td>Ecosystems and Society</td>
</tr>
<tr>
<td>CHE 212</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>CHE 230</td>
<td>Introductory Organic Chemistry</td>
</tr>
<tr>
<td>CHE 331</td>
<td>Organic Chemistry</td>
</tr>
<tr>
<td>MAT 220</td>
<td>Meteorology for Science Majors II</td>
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<td>Meteorology for Sci. Majors II Lab</td>
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<tr>
<td>MET 305</td>
<td>Climatology</td>
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<td>MET 340</td>
<td>Air Pollution</td>
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<tr>
<td>PHY 111</td>
<td>College Physics</td>
</tr>
<tr>
<td>ZOO 405</td>
<td>Limnology</td>
</tr>
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</table>

B. Elective Requirements (15-20 cr)

Select four courses from the following:

Select four courses from the following:

<table>
<thead>
<tr>
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<td>Geophysics</td>
</tr>
<tr>
<td>GEO 308</td>
<td>Geology of New York State</td>
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<td>GEO 350</td>
<td>Remote Sensing</td>
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<td>GEO 435</td>
<td>Volcanology</td>
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<tr>
<td>GEO 399</td>
<td>Independent Study</td>
</tr>
<tr>
<td>GEO 420</td>
<td>Sedimentation and Stratigraphy</td>
</tr>
<tr>
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<td>MAT 220</td>
<td>Meteorology for Science Majors II</td>
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<tr>
<td>MET 220</td>
<td>Meteorology for Sci. Majors II Lab</td>
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<td>Climatology</td>
</tr>
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<td>College Physics</td>
</tr>
<tr>
<td>ZOO 405</td>
<td>Limnology</td>
</tr>
</tbody>
</table>

C. Cognate Requirements (15 cr)

C. Cognate Requirements (15 cr)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
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Proposed Changes to Geology BA

The proposed changes to the BA Geology degree program meets most education requirements for NYS PG licensure. However, the proposed changes update the curriculum to insure that all educational requirements will be met and better reflects the regular course offerings that support the other geology programs.

1. Addition of GEO 326 (Geographic Information Systems) to the core curriculum.

Based on education standards related to the New York State Professional Geology license, and the ASBOG content exam, it is very important to include GEO 326 to the core curriculum. All graduates in geology, need a solid foundation in the application of Geographic Information Systems in geology. Employers are looking for this skill, including consultants, engineering and environmental firms, and government organizations. Equally important is that GIS is applied across all disciplines in geology and is heavily used in graduate programs. To keep pace with other geology programs, it is important that this course be moved from the elective list to the required core of the degree program.

1. Remove GEO 440 (Invertebrate Paleontology) from the core curriculum and add it to the list of 300 and 400 level geology electives.

The current curriculum includes a year-long sequence of two courses (4 cr each) with focus in the field of invertebrate paleontology (GEO 200 and GEO 440). In light of the need to add GIS to the core curriculum, and to maintain comparable overall credits for the curriculum, it was decided that one course in the field of paleontology will provide sufficient experience for our graduates, and this includes sufficient experience for those students that double major with the Geology BA to support the Ad. Ed. program. This decision is supported by the published content requirements for the ASBOG examination, where paleontology is ranked as one of the least critical fields in geology. GEO 440 will remain in the curriculum as a geology elective course.

2. The above changes will reduce the overall program credits by 1.

GEO 440 is a 4 credit course that is moved to the list of electives. GEO 326 is a 3 credit course that will substitute for GEO 440 in the core curriculum. Therefore, overall change in credit hours is -1. Since most geology students regardless of track, have been enrolling in GIS (GEO 326) as an elective course, the number of students taking the course should increase modestly or not at all. At most, Rachel Lee will offer two sections of the course each year, with most years depending on anticipated enrollment. Prior to these proposed changes, we are at the point where the number of students needing courses has filled the 24 seat labs that were programmed for the new building, including the geology computing lab. The software that supports the GIS course is based on a site license to all of SUNY from ESRI. It’s available to every faculty member on
campus, and can be installed on every campus computer depending on needs. There is no new software expense if extra sections of the GIS course are needed from time to time.

*Note: Unlike the other geology programs, MAT 318 is not included in the BA Geology program because the BA program primarily supports the earth sciences, adolescent education degree. Standards related to teacher instruction include a year of calculus, and no other students enroll in the BA Geology program.

Current BA Geology Program

Geology Major (61-62 cr)

A. Core Requirements (34 cr)

Select one of the following three:

- GEO 100 - Physical Geology Credit: 3
- GEO 115 - Environmental Sustainability Credit: 3
- OCE 100 - Oceanography Credit: 3

- GEO 101 - Physical Geology Laboratory Credit: 1
- GEO 200 - Historical Geology Credit: 3
- GEO 201 - Historical Geology Lab Credit: 1
- GEO 310 - Mineralogy Credit: 4
- GEO 330 - Structural Geology Credit: 4
- GEO 416 - Petrology Credit: 4
- GEO 420 - Sedimentation and Stratigraphy Credit: 4
- GEO 440 - Invertebrate Paleontology Credit: 4
- GEO 481 - Field Geology Credit: 6

B. Elective Requirements (3-4 cr)

Select one course from the following:

- GEO 315 - Earth’s Fury Credit: 3
- GEO 340 - Geophysics Credit: 3
- GEO 430 - Hydrogeology Credit: 3
- GEO 450 - Geomorphology Credit: 3
- GEO 480 - Tectonics Credit: 3
- GEO 486 - Field Techniques Credit: 3
- GCH 436 - Solid Earth Geochemistry Credit: 4
- GCH 437 - Earth Surface Geochemistry Credit: 4
- GCH 438 - Isotope Geochemistry Credit: 3

C. Cognate Requirements (24 cr)

- MAT 210 - Calculus I Credit: 4
- MAT 220 - Calculus II Credit: 4
- CHE 111 - General Chemistry Credit: 4
- CHE 212 - General Chemistry II Credit: 4

Select one of the following:

- PHY 111 - College Physics I Credit: 4
- PHY 112 - General University Physics I Credit: 4

Select one of the following:

- PHY 212 - College Physics II Credit: 4

Proposed Changes

Geology Major (60-61 cr)

A. Core Requirements (33 cr)

Select one of the following three:

- GEO 100 - Physical Geology Credit: 3
- GEO 115 - Environmental Sustainability Credit: 3
- OCE 100 - Oceanography Credit: 3

- GEO 101 - Physical Geology Laboratory Credit: 1
- GEO 200 - Historical Geology Credit: 3
- GEO 201 - Historical Geology Lab Credit: 1
- GEO 310 - Mineralogy Credit: 4
- GEO 330 - Structural Geology Credit: 4
- GEO 326 - Geographic Information Systems Credit: 3
- GEO 416 - Petrology Credit: 4
- GEO 420 - Sedimentation and Stratigraphy Credit: 4
- GEO 481 - Field Geology Credit: 6

B. Elective Requirements (3-4 cr)

Select one 300- or 400-level GEO or GCH course under faculty advisement.

C. Cognate Requirements (24 cr)

- MAT 210 - Calculus I Credit: 4
- MAT 220 - Calculus II Credit: 4
- CHE 111 - General Chemistry Credit: 4
- CHE 212 - General Chemistry II Credit: 4

Select one of the following:

- PHY 111 - College Physics I Credit: 4
- PHY 112 - General University Physics I Credit: 4

Select one of the following:

- PHY 212 - College Physics II Credit: 4
Proposed Changes to Geology Minor

Currently the Geology Minor program enables students to complete the minor without completing a single core geology course. In effect, it’s possible for the minor can be completed with mostly general education courses. To be in-line with the major programs, it’s proposed here that the list of electives to support the minor not include upper level general education geology courses, that were originally intended for the old Intellectual Issues requirement or the current World Awareness requirement in the General Education program. The excluded courses are Earth Resources (GEO 305), Science, Pseudoscience and Fraud (GEO 306), and Earth’s Fury (GEO 315). This will insure that students receiving the minor in geology have studied in the field to some depth beyond General Education. There is no change in resources or overall credit hours for the minor program.

Current Geology Minor Program
Geology Minor (20 cr)
A. Core Requirements (8 cr)
   Select one course from the following three:
   GEO 100 - Physical Geology Credit: 3
   GEO 115 - Environmental Sustainability Credit: 3
   OCE 100 - Oceanography Credit: 3
   GEO 101 - Physical Geology Laboratory Credit: 1
   GEO 200 - Historical Geology Credit: 3
   GEO 201 - Historical Geology Lab Credit: 1
B. Elective Requirements (12 cr)
   Geology courses at or above 300-level, under advisement of geology faculty. Courses may have prerequisites.
C. Cognate Requirements - None

Proposed Changes to Geology Minor Program
Geology Minor (20 cr)
A. Core Requirements (8 cr)
   Select one course from the following three:
   GEO 100 - Physical Geology Credit: 3
   GEO 115 - Environmental Sustainability Credit: 3
   OCE 100 - Oceanography Credit: 3
   GEO 101 - Physical Geology Laboratory Credit: 1
   GEO 200 - Historical Geology Credit: 3
   GEO 201 - Historical Geology Lab Credit: 1
B. Elective Requirements (12 cr)
   3-4 geology 300- or 400-level courses, under advisement of geology faculty, excluding GEO 305, 306 or 315. Courses may have prerequisites.
C. Cognate Requirements - None