Course Approval Form

For instructions see:
http://registrar.gmu.edu/facultystaff/catalog-revisions/course/

Action Requested:

- [X] Create new course
- [ ] Inactivate existing course
- [ ] Reinstate inactive course
- [ ] Modify existing course (check all that apply)
  - [ ] Title
  - [ ] Credits
  - [ ] Repeat Status
  - [ ] Grade Type
  - [ ] Prereq/coreq
  - [ ] Schedule Type
  - [ ] Restrictions
  - [ ] Other:

Course Level:

- [ ] Undergraduate
- [X] Graduate

College/School: COS
Department: AOES
Submitted by: Dr. Julia Nord
Ext: 3-3395
Email: jnord@gmu.edu

Subject Code: GEOL
Number: 553
(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Effective Term:

- [X] Fall 2015
- [ ] Spring *Year* 2015
- [ ] Summer

Title:
Current
Banner (30 characters max w/ spaces)
New: Field Mapping Techniques

Fulfills Mason Core Req? (undergrad only)

- [ ] Currently fulfills requirement
- [ ] Submission in progress

Credits: (check one)

- [3] Fixed
- [ ] Variable

or
to

Repeat Status: (check one)

- [ ] Not Repeatable (NR)
- [ ] Repeatable within degree (RD)
- [ ] Repeatable within term (RT)

Maximum credits allowed:

Grade Mode: (check one)

- [x] Regular (A, B, C, etc.)
- [ ] Satisfactory/No Credit
- [ ] Special (A, B C, etc. +IP)

Schedule Type: (check one) LEC can include LAB or RCT

- [ ] Lecture (LEC)
- [X] Lab (LAB)
- [ ] Recitation (RCT)
- [ ] Internship (INT)
- [ ] Independent Study (IND)
- [ ] Seminar (SEM)
- [ ] Studio (STU)

Prerequisite(s):
Previous courses in geometry or trigonometry or equivalent; and environmental science, geography, or geology or equivalent.

Corequisite(s):

Instructional Mode:

- [X] 100% face-to-face
- [ ] Hybrid: ≤ 50% electronically delivered
- [ ] 100% electronically delivered

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code.

Are there equivalent course(s)?

- [X] Yes
- [ ] No

If yes, please list EVPP 503

Catalog Copy for NEW Courses Only (Consult University Catalog for models)

Description (No more than 60 words, use verb phrases and present tense)	**Notes** (List additional information for the course)
Explores basic techniques for collecting, recording, and plotting spatial field data, including topographic maps, compass, transit, alidade, and global positioning systems. Field work and field-based research project.	

Indicate number of contact hours: Hours of Lecture or Seminar per week: ____ Hours of Lab or Studio: 6

When Offered: (check all that apply) [X] Fall [ ] Summer [ ] Spring

Approval Signatures

Department Approval ____ Date ____

College/School Approval ____ Date ____

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Graduate Courses Only

Graduate Council Member ____ Provost Office ____ Graduate Council Approval Date ____

For Registrar Office's Use Only: Banner_____Catalog_____

revised 10/16/14

Course Proposal Submitted to the Curriculum Committee of the College of Science

1. COURSE NUMBER AND TITLE: GEOL 553

Course Prerequisites: Previous courses in geometry or trigonometry or equivalent; and environmental science, geography, or geology or equivalent; or permission of instructor.

Catalog Description: Explores basic techniques for collecting, recording, and plotting spatial field data, including topographic maps, compass, transit, alidade, and global positioning systems. Field work and field-based research project.

2. COURSE JUSTIFICATION:

Course Objectives: This course will provide one of the options for the required techniques courses as part of the Earth Systems Science MS.

Course Necessity: AOES currently does not provide any GEOL techniques courses for the Earth Systems Science MS.

Course Relationship to Existing Programs: Course is designed to expand the options for geologically-oriented MS students regarding the offering of techniques courses in support of the Earth Systems Science MS.

Course Relationship to Existing Courses: Course will be cross-listed with EVPP 503. This course was first taught in ESP when the geology faculty resided in that department in the past. EVPP master's students will continue to have access to the course but now GEOL graduate students will have access as part of Earth Systems Science MS.

3. APPROVAL HISTORY: approved by AOES faculty on 21 Nov 2014.

4. SCHEDULING AND PROPOSED INSTRUCTORS:

Semester of Initial Offering: Spring '16

Proposed Instructors: Dr. Julia Nord or Lori Mandible

5. TENTATIVE SYLLABUS: See separate syllabus (separate file).

The information on this page may change so check back often
EVPP 503 - FIELD MAPPING TECHNIQUES
FALL 2012
http://mason.gmu.edu/~jnord/geol303/

PREREQUISITE	*30 credits including MATH 105 or equivalent and GEOG 102 or GEOL 101*
CLASS MEETS	*Wednesday 3:00 - 4:15 pm in David King 2084* *Friday 1:30 - 5:30 pm, in David King 2084*
INSTRUCTOR	*Lisa LaCivita, xxx DK Hall* *Email Address - llacivit@gmu.edu* *Dr. Julia Ann Nord, 3055 David King Hall* *Email Address - jnord@gmu.edu*
OFFICE HOURS	*Friday 11:00 - 12:00 or by appointment.*
TEXTS	*As assigned*
My Door Code	
My Brunton Number	
My GPS Number	
My Computer Number	

COURSE SCHEDULE

DATE	***TOPIC***	***READINGS***	***PROJECTS & DUE DATES***
WEEK 1 *AUGUST 29.* *Wednesday*	*Overview of the Course.* *Safety & equipment.* *Using a field notebook* *Latitude and Longitude* *UTM* *Projections*	*For map projections http://egsc.usgs.gov/isb/pubs/MapProjections/projections.html* *For longitude and latitude http://nationalatlas.gov/articles/mapping/a_latlong.html* *For UTM http://egsc.usgs.gov/isb/pubs/factsheets/fs07701.html*	***Project 1*** *Topographic maps of GMU. Done in classroom*
AUGUST 31 *Friday*	*Topographic Maps.* *Topo map of Fairfax.* *Scale. Symbols.* *North / Magnetic North* *Contours.*	*For topographical profile http://www.iupui.edu/~geogdept/g108/lab_3.htm* *Reading topographic maps. ALSO Map symbols* *http://egsc.usgs.gov/isb/pubs/booklets/symbols/reading.html*	
WEEK 2 *SEPTEMBER 5.* *Wednesday*	*GPS* *ellipsoid* *Precision & accuracy*	*Notes and Forms* *http://uts.cc.utexas.edu/~wd/courses/373F/notes/lec04not.html* *Reflective journals (first 2 pages only)* *http://www.audiencedialogue.net/journal.html* *http://maps.unomaha.edu/Maher/deathvalley/fieldnotetaking.html*	***Project 2.*** *Trimble GPS*
SEPTEMBER 7 *Friday*	*GMU Safety Office* *Trimble GPS on campus.* *Working with GPS*		
WEEK 2		*GRADUATES - Select Research topic*	
WEEK 3 *SEPTEMBER 12* *Wednesday*	*Introduction to Pathfinder office and ARC GIS* *Nesting*		***Project 3.*** *Map of GMU Pond in Pathfinder office.*
SEPTEMBER 14	*Mapping GMU pond* *Outside at GMU*		

Friday			
WEEK 4 *SEPTEMBER 19 Wednesday*	*GMU Watershed (Storm Drains) talk by Lisa LaCivita outside at GMU*		***Project 4.*** *Using GPS and GIS to make a map of GMU Watersheds!* *Also "surf your watershed" worksheet* ***MATH 1*** *Trig Review questions #1. Given sept 21st* *ALL due September 28th* *Julia will be out of town September 28*
SEPTEMBER 21 Friday	*Map of GMU Watersheds Outside at GMU* ***END OF GPS-GIS SECTION***		
WEEK 5 *SEPTEMBER 26 Wednesday*	*Introduction to the Brunton Compass North and Magnetic north. Precision & accuracy Measurement review*	*Pocket Transit Manual www.kooters.com/pdf/BruntonTransit-inst.pdf*	***Project 5*** *Pace and Compass* ***Math 2*** *Measurement. Given september 28th. BOTH due oct 5th at start of class.*
SEPTEMBER 28 Friday	*Pace and Compass errors and calculations At GMU - The Quad*		
WEEK 5		*GRADUATES - Summary of data for watershed projects*	
WEEK 6 *OCTOBER 3 Wednesday*	*Height and width and the Brunton Compass "clocks and sharks"*		***Project 6*** *Pace and Compass. Slopes. Triangulation* ***FRIDAY*** *-Meet at the GMU Field House*
OCTOBER 5 Friday	*Pace and Compass Pace and slopes* *Meet at the GMU Field House*		
WEEK 7 *OCTOBER 10 Wednesday*	*Plotting on a Topographic Map "where is the Johnson Center"* *Preparation for Manassas Battlefield project*		***Project 7*** *Manasas Battlefield* *due October 19th*
OCTOBER 12 Friday	*Manasas Battlefield* ***END OF PACE & COMPASS***		
WEEK 8 *OCTOBER 17 Wednesday*	*Introduction to the transit Recording Transit data. Information needed on map projects* ***MATH 3. HOMEWORK FOR FRIDAY***	*Great Trigonometric Survey*	***MATH 3. HOMEWORK FOR FRIDAY*** *Differential Leveling* ***Project 8*** *Transit map around GMU pond.*
OCTOBER 19 Friday	*Transit map*		
WEEK 8		*GRADUATES - Introduction and Method section for Research project*	
WEEK 9	*Topographic maps &*	*Trandit and Plane table contouring*	***Project 9*** *Transit contour*

OCTOBER 24 Wednesday	*contouring*	*ftp://ftp.fao.org/fi/CDrom/FAO_Training/FAO_Training/General/x6707e/x6707e09.htm*	*map. GMU pond. Due November 4th*
OCTOBER 26 Friday	*Tape, compass and leveling GMU campus*		***Math 4** Angles. Given october 26th. Due wednesday November 2nd*
***WEEK 10** OCTOBER 31 Wednesday*	*Introduction to the Alidade*		***Project 10** Alidade Map with contours of GMU pond. Due Wednesday November 16th - WITH comparison essay/map of Projects 9 and 10.*
WEEK 10		*GRADUATES - Research Project - data completed.*	
NOVEMBER 2 Friday	*Alidade Map GMU campus*		
***WEEK11** NOVEMBER 7 Wednesday*	*GIS. Joy Suh, GMU libraries. Geospatial data.*		
NOVEMBER 9 Friday	*Geocaching*		
***WEEK 12** NOVEMBER 14 Wednesday*	*How to make a detailed map.*		
NOVEMBER 16 Friday	*Main mapping project Visit to Environmental studies on the Piedmont* *Debrief Geocaching*		*No project - visiting main project site on friday*
WEEK 12		*GRADUATES - Research Project - completed.*	
NOVEMBER 17-18 saturday / sunday	***GEM MINERAL AND FOSSIL SHOW***		
***WEEK 13 NO CLASSES** NOVEMBER 21 - 25*	***THANKSGIVING BREAK***		
***WEEK 14** NOVEMBER 28 Wednesday*	*Main Mapping Project Planning in groups Need to meet in class today to plan and collect and check equipment.*		***Main Mapping Project (Project 11)***
NOVEMBER 30 Friday	*Main Mapping Project*		***Stay overnight at Environmental Studies on the Piedmont***
DECEMBER 1 Saturday	*Main Mapping Project*		
***WEEK 15** DECEMBER 5 Wednesday*	*Main Mapping Project Planning in groups you do not need to meet in class today*		***Presentations***
DECEMBER 7 Friday	*Presentations: main mapping project*		

WEEK 15 / 16		*GRADUATES - Summary of data for main mapping project*	

GRADING

Project 1	*10 points*
Project 2	*10 points*
Project 3	*10 points*
Project 4	*10 points*
Project 5	*10 points*
Project 6	*10 points*
Project 7	*10 points*
Project 8	*10 points*
Project 9	*10 points*
Project 10	*10 points*
Project 11	*15 points*
Project 11 Presentation	*5 points*
Math 1	*5 points*
Math 2	*5 points*
Math 3	*5 points*
Math 4	*5 points*
MakeUp Geocaching	*5 points*
Makeup Oreienteering	*5 points*
Makeup Smithsonian	*5 points*
Summary projects (2)	*10 points each*
Research Project	*20 points*
Total possible	*180 points*

GRADING

A+ GPA 4.00	*97% and above*
A GPA 4.00	*90% -96%*
A- GPA 3.67	*88% - 89%*
B+ GPA 3.33	*86% - 87%*
B GPA 3.00	*80% - 85%*
B- GPA 2.67	*78% - 79%*
C+ GPA 2.33	*76% - 77%*
C GPA 2.00	*70% - 75%*
C- GPA 1.67	*68% - 69%*
D GPA 1.00	*60% - 67%*
F GPA 0.00	*below 59%*

IMPORTANT - ALL STUDENTS NEED TO READ THIS

- *The objective of this course is to enable you to make field measurements efficiently, assess the precision and accuracy of these measurements, and convert these data into a map.*
- *Projects are due as designated. If submitted late, your grade will be reduced by one point for each day after the due time.*
- *Projects that receive a low grade may be repeated, and re-submitted . If this is done, they will be re-graded, however, the maximum possible score for repeated labs will be half the difference between the original grade and the maximum possible grade. Original graded work must be re-submitted with the repeated work.*
- *For each exercise, please hand-in the following:*

  *• A **readable** xerox copy of your field notes (do NOT prepare a separate copy of your data)*
  • Your field map
  • A final, drafted copy of the project - if requested
  • An analysis of the precision and accuracy of your results, and the sources of error inherent in this type of mapping

- *Projects will be graded on the basis of completeness, accuracy, error analysis, and final presentation.*

- ***Necessary Field Equipment***
  • Field Notebook (waterproof)
  • Pencils, hardness of at least 2
  • Waterproof, thin ink pen
  • Protractor
  *• Graph paper (10/inch * 10/ inch)*
  • Clipboard with Cover
  *• **Engineers** Rule (inches) needs to be graduated in 10th, 20ths, 30ths, 40ths, 50ths, and 60ths.*
  • Calculator (with Trig Functions)
  • Small cheap compass

  • Field Boots or Sturdy Shoes
  • Sunscreen
  • Water bottle
  • Hat
  • Bug repellent
  • Rain Gear - a Poncho is best
  • Snacks

- *You are personally responsible for any equipment checked out in your name. Please treat the equipment as if it were your own. Final grades will not be assigned to anyone who has not returned all field equipment.*
- *When working in the field, please try to adhere to the following:*

  1. COME PREPARED. Have the proper equipment , and be sure it is in proper working order. Know beforehand what you are supposed to accomplish, and be familiar with the techniques and equipment involved.

  2. WORK SAFELY. Never work alone, especially in rugged terrain. Always tell someone where you will be, just in case you don't return. Wear proper field clothes. Always keep your wits about you. Remember to drink plenty of fluids and eat!

  3. WORK EFFICIENTLY AND BUDGET YOUR TIME. Develop a way to do your fieldwork in a comfortable, but efficient manner. Keep in mind there is a limited amount of time in which to complete the project. Leave enough time after fieldwork to prepare the report.

  4. PLOT YOUR RESULTS IN THE FIELD. Get in the habit of collecting data, calculating, compiling, and plotting results while at the field site. This is the most important way to check your work for accuracy. This may save you from making unnecessary trips back to the field.
- ***General Policies***
- *Attendance: You are expected to attend every class session and to be there on time. If you must miss a class please let the instructor know ahead of time. Most projects are team-based and your colleagues will miss you!*
- *Attendance: If you must miss a class **for a documented reason**, we have 3 make-up assignments that you can chose from.*
- *Academic Integrity: GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When in doubt (of any kind) please ask for guidance and clarification. For information on avoiding Plagiarism please visit: http://writingcenter.gmu.edu/?p=499#more-499*
- *GMU Email Accounts Students must use their Mason email accounts—either the existing "MEMO" system or a new "MASONLIVE" account to receive important University information, including messages related to this class. You can set up this email to forward to a different email address.See http://masonlive.gmu.edu for more information.*
- *Office Of Disability Services If you are a student with a disability and you need academic accommodations, please contact the instructor and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS. http://ods.gmu.edu*
- *University Policies The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies*

- *Other Useful Campus Resources: Writing Center: A114 Robinson Hall; (703) 993-1200; http://writingcenter.gmu.edu*
  University Libraries "Ask a Librarian" http://library.gmu.edu/mudge/IM/IMRef.html
  Counseling And Psychological Services (Caps): (703) 993-2380; http://caps.gmu.edu
- *Cell phones: As a courtesy to your classmates, professor and guest speakers, please turn your cell phone off during class. If you are experiencing a medical or family situation where you need to receive an incoming call, please let us know, mute the ring on your phone, and feel free to exit the class to receive your call. You will be able to use your phone for class related issues when in the field off campus.*
- *Inclement Weather: We will hold class rain or shine, and at any temperature so long as Mason is officially in session.*
- *Inclement Weather and Class Cancelation: GMU posts closings on its website (www.gmu.edu.) You can receive notification from Mason Alerts you via email or text to a cell phone; please let us know if you need more information. However, please use your common sense about weather conditions in your area. If you do not feel safe traveling to class please do not attempt the journey.*