Gis2 - GEO363 - Intermediate Geographic Information Systems

Scott Drzyzga, Ph.D., GISP
Office: 208 Shearer Hall
Email: sadrzy@ship.edu
Office hours and all course materials at http://webspace.ship.edu/sadrzy/geo363

Mission of the Geography-Earth Science Department
The Geography-Earth Science Department is committed to student learning and personal development through innovative teaching, high quality field application, and the use of geotechnology in all aspects of our programs. These commitments will deepen students’ appreciations of Geography-Earth Science, encourage life-long learning and enable majors to enter a geography or earth science related professional career, to teach at the middle or secondary level, or to pursue an advanced degree.

Purpose of this Course
The purpose of GIS2 is to help students to learn how to think spatially and critically while developing practical skills using geospatial data and technology. Some concepts covered during GIS1 will be revisited, including the nature of data, data models, geodesy, map projections, and coordinate systems, but in greater detail. New topics include sampling, interpolation, map algebra, terrain modeling, and spatial analysis. Skill development will focus on geospatial data collection methods, data processing methods, project management, and using spatial logic to answer geographic questions. GIS2 serves as one of six courses that can satisfy an elective requirement of the undergraduate GIS Certificate program and it is a required course for students enrolled in the Geography/GIS major or minor programs.

Learning Objectives
After successfully completing this course, students should be comfortable: a) conceptualizing entities and fields; b) working with the vector and raster approaches to spatial data; c) moving data into, around, and out of a GIS environment; d) creating, visualizing, and interpreting mapped surfaces; and e) using Esri’s ArcGIS Desktop software (v10.5) to do all of the above. Students will be tasked with analyzing geographic problems, describing spatial patterns, learning and practicing new techniques, and documenting their work with a professional writing style. Students should realize that even though we will rely heavily on Esri’s software suite, the lessons learned in this course can be applied within any GIS environment (e.g., QGIS). This course is a hands-on course AND a writing-intensive course.

Required Texts
Digital versions of this text are available @ XanEdu. Full-color images from the text are available for download @ http://www.paulbolstad.net/gisbook.html

Helpful but not required
The writing resources and citation guide offered by the Department of Geography-Earth Science https://www.ship.edu/Geo-ESS/Writing_Resources/
The relationship between reading assignments and class time

Every assigned reading (see the Schedule posted online) has been chosen because it is relevant and necessary to help you develop your understanding of new vocabulary, concepts, and skills. A reading assignment is complete only when understanding is achieved.

A series of short in-class lectures will clarify fundamental concepts covered by the text, cover related or emerging topics not covered by the text (technology changes quickly), or present worked examples of spatial thinking. The lectures support the readings; not duplicate them. All terms, concepts, and skills covered by the readings, lectures, in-class or take-home lab exercises are subject to examination.

Labs and Lab Reports (6 labs @ 40pts + 1 lab @ 80pts = 320 pts total)

Much of your time will be spent learning by doing. Instructions for in-class exercises and take-home labs will be posted on the course website and discussed during class. In-class exercises will be used to demonstrate or reinforce concepts or skills. Lab assignments will be completed as homework and used to further develop spatial thinking skills. Students are responsible for submitting on-time a professional lab report for each lab accomplished (see the rubric posted online that covers how lab reports are scored).

Professionalism (40 pts — Credit for this idea goes to Drs. Armstrong & Wellington)

You are expected to perform in this course as you will be expected to perform in the workplace; professionally. The purpose of your Professionalism score is to help you understand how an employer forms an opinion of you. When hired, your employer will be very excited and have high hopes for you. Each time you disappoint (clients, shareholders, peers, a boss, etc.), however, your reputation will tarnish, which in turn will affect your prospects within your firm or organization. Like that initial high hope, your professionalism score for this course starts high (at 40 pts in this case); it can stay high, go down, or even turn negative. Table 1 identifies professional behaviors sought by clients and employers as well as the unwanted behaviors that will negatively affect your Professionalism score.

Table 1. Professional behaviors and unprofessional behaviors with negative impacts.

<table>
<thead>
<tr>
<th>Expected professional behavior</th>
<th>Example of an unprofessional behavior</th>
<th>Negative impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>I show up on time and am prepared every day.</td>
<td>1. Excused lateness or absence.</td>
<td>-1 pt</td>
</tr>
<tr>
<td></td>
<td>2. Unexcused lateness to class.</td>
<td>-2 pts</td>
</tr>
<tr>
<td></td>
<td>3. Printing a lab report as or after class begins on the day that it is due.</td>
<td>-3 pts</td>
</tr>
<tr>
<td></td>
<td>4. Failing to bring textbooks or memory devices to class.</td>
<td>-4 pts</td>
</tr>
<tr>
<td></td>
<td>5. Unexcused absence from class.</td>
<td>-4 pts</td>
</tr>
<tr>
<td></td>
<td>6. Sends e-mail messages that do not include subject lines, greetings, or signatures; or that uses non-standard English.</td>
<td>-4 pts</td>
</tr>
<tr>
<td>I communicate well with my colleagues and management.</td>
<td>7. Unexcused absence from a class that results in a late group assignment or a missed group presentation.</td>
<td>-10 pts</td>
</tr>
<tr>
<td></td>
<td>8. Unexcused absence from a scheduled appointment (with me or with your peers).</td>
<td>-10 pts</td>
</tr>
<tr>
<td>I plan ahead for unusual or unexpected outcomes.</td>
<td>9. Failing to back up your data/memory device.</td>
<td>-5 pts</td>
</tr>
<tr>
<td>I work with honesty and integrity.</td>
<td>10. Cheating or plagiarizing another’s work.</td>
<td>lose an amount equal to the value of the report/exam.</td>
</tr>
<tr>
<td>I serve as a positive role model.</td>
<td>11. Disruptive, rude, intolerant, or cruel acts.</td>
<td>-1 to -10 pts</td>
</tr>
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**Exams (140 pts)**
Two exams are scheduled (each worth 70 pts). Exams are used not to assess short-term memory, but to assess your abilities to use GIS-related vocabulary, concepts, and practiced skills.

**Schedule of Earned Course Points and Final Letter Grades**
Course activities have point values that sum to 500: seven lab reports (320 pts max), professionalism (40 pts max), and two exams (140 pts max). At the end of the semester, your earned course point total will be reclassified into a letter grade using Table 2.

Table 2. Schedule of earned course points and letter grades

<table>
<thead>
<tr>
<th>Course points</th>
<th>Letter grade</th>
<th>min %</th>
<th>Quality points</th>
</tr>
</thead>
<tbody>
<tr>
<td>465 - 500</td>
<td>A</td>
<td>93 ≤</td>
<td>4.0</td>
</tr>
<tr>
<td>450 - 464</td>
<td>A-</td>
<td>90</td>
<td>3.7</td>
</tr>
<tr>
<td>435 - 449</td>
<td>B+</td>
<td>87</td>
<td>3.3</td>
</tr>
<tr>
<td>420 - 434</td>
<td>B</td>
<td>84</td>
<td>3.0</td>
</tr>
<tr>
<td>405 - 419</td>
<td>B-</td>
<td>81</td>
<td>2.7</td>
</tr>
<tr>
<td>390 - 404</td>
<td>C+</td>
<td>78</td>
<td>2.3</td>
</tr>
<tr>
<td>350 - 389</td>
<td>C</td>
<td>70</td>
<td>2.0</td>
</tr>
<tr>
<td>310 - 349</td>
<td>D</td>
<td>62</td>
<td>1.0</td>
</tr>
<tr>
<td>&lt; 310</td>
<td>F</td>
<td>&lt; 62</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Comment and Disclaimer**
The set of schedules, policies, and assignments described above is subject to change in the event of an extenuating circumstance or by mutual agreement between the professor and students.

**General Policies**
Students are expected to behave with manners that support a positive learning environment.

- **Accommodations** - Students with learning needs that are registered with the Office of Disability Services are strongly encouraged to see me and to advocate for themselves.
- **Tardiness** - Students are expected to arrive and be prepared for class before class begins. Arriving to class late is a distraction to all, so if you must arrive late, then enter the room in the least disruptive manner.
- **Absences** - Students will get the most value for their tuition dollar by attending all classes, completing all assignments, and asking questions. All sickness- or death-related absences must be reported to your college (most of you are in the College of Arts and Sciences), which will alert all of your professors.
- **Eating** - Students are expected to not eat meals during class; other places and times are more appropriate. To protect our equipment, liquids (e.g., coffee, tea, soda, etc.) may NOT be consumed in the computer lab.
- **Distractions** - All electronic communication devices must be silenced before class begins. All electronic communication and data sharing devices must be silenced and stowed out of sight during exams. Any student that fails to silence or stow an electronic communication device during an exam, even unintentionally, will forfeit his or her exam and receive a zero (0) score.
- **Assignment deadlines** - If you anticipate having a problem submitting an assignment on time, then see me as soon as possible BEFORE the scheduled class or due date so we can adapt. Otherwise, completed assignments are due at the beginning of class on the specified due date. For reasons of fairness and efficiency, late assignments will not be accepted and scored with zero (0) points. Rare exceptions will be granted only when matters of dire personal emergency arise or for reasons that are documented properly (see “Absences” above).
Shippensburg University policy re: Incidents of Sexual Violence

Shippensburg University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University’s Title IX Coordinator. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report allegations of sexual violence or any other abuse of a student who was or is a child (a person under 18 years of age) when the abuse allegedly occurred. Such reporting must be made to the Shippensburg University Police at 477-1444, the Department of Human Services (DHS) at 800-932-0313, and the University’s Office of the Vice President of Student Affairs at 477-1308. Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence can be found at: http://www.ship.edu/No_More/Sexual_Misconduct/Sexual_Misconduct_Information/

Shippensburg University policies re: Academic Honesty

All students are expected to know and understand the Academic Policies and Procedures described in the Shippensburg University Student Handbook (SWATANEY), particularly the sections regarding class attendance and academic dishonesty. Each student should also take time to understand his or her responsibilities and safeguards as provided by the US Family Educational Rights and Privacy Act (FERPA), which requires academic institutions to treat student academic records as confidential records.

Shippensburg University expects academic honesty from every student, for academic honesty is crucial to the integrity and reputation of a University. Conversely, academic dishonesty undermines the very basis upon which a community of scholars and learners functions. The term academic dishonesty means deceit or misrepresentation in attempting (successfully or unsuccessfully) to influence the grading process or to obtain academic credit by a means not authorized by a course instructor or university policy. Academic dishonesty is committed by students who give, as well as receive, unauthorized assistance in course and laboratory work and/or who purposefully evade or assist other students in evading the university’s policy against academic dishonesty. Academic dishonesty includes but is not limited to:

- Bribing, or attempting to bribe, faculty or staff in order to attain an unfair academic advantage.
- Possessing course examination materials prior to administration of the exam by the instructor without the instructor’s consent.
- Using unauthorized materials or devices such as crib notes during an examination.
- Providing and/or receiving unauthorized assistance during an examination.
- Using a substitute to take an examination or course.
- Allowing others to conduct research for you or to prepare your work without advance authorization from the instructor, including, but not limited to, the services of commercial term paper companies.
- Plagiarism, as the term is defined in the Shippensburg University Student Handbook: SWATANEY (see below).
- Intentionally and without authorization falsifying or inventing any information or citation in an academic exercise, such as making up data in an experiment or observation.
Plagiarism
Plagiarism is a form of academic dishonesty; it is unacknowledged use of another writer’s words, facts, propositions, or materials in your own writing. When other writers’ words, facts, propositions or materials are used, then you should put them inside quotation marks and cite your source (see the link above). In other words, give credit where credit is due. Failure to do so can be considered plagiarism.

The Department of Geography-Earth Science uses the “inline name-year citation” and “end full citation” system used by the Council of Science Editors, which is generally accepted among people working in the physical, natural, and social sciences. Students unfamiliar with this system of citing sources are encouraged to review the writing resources offered by the Department of Geography-Earth Science @ https://www.ship.edu/Geo-ESS/Writing_Resources/

Agreement of Understanding

I have read and I understand the purpose, learning objectives, assessment methods, and policies described in this syllabus.

I have read and I understand Shippensburg University’s policies regarding sexual violence, student academic record confidentiality, and academic honesty. I know I can revisit these policies any time I want for they are available in the Shippensburg University Student Handbook: SWATANEY and posted on the Shippensburg University website.

I understand that any form of academic dishonesty (e.g., cheating, fabrication, falsification, forgery, multiple submission, plagiarism, complicity or computer misuse), whether successful or unsuccessful, will be penalized with the loss of the full point value of the assignment in question and an equal loss of Professionalism points; with an “F” letter grade for the course; or in a manner to be determined according to Shippensburg University’s formal resolution policy.

I understand that all of my electronic devices that are capable of communicating or sharing data with others (e.g., laptops, tablets, smart watches, mobile devices, etc.) must, unless I am given permission by the professor, be silenced before each class begins. I also understand that these items cannot be used during exams. If I fail to silence or stow any such device during an exam, then I will forfeit my exam and receive zero (0) points for it.

Student signature_________________________________ Date ___________________________