NR319: Geospatial Applications in Natural Resources
Department of Forest and Rangeland Stewardship
Warner College of Natural Resources

COURSE SYLLABUS

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Teaching Assistants</th>
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<tbody>
<tr>
<td>Name: Rocky Coleman</td>
<td>Ben Harms</td>
</tr>
<tr>
<td>Office: Forestry 100</td>
<td>Noah Amme</td>
</tr>
<tr>
<td>Phone: 491 - 0710</td>
<td>Arian Brazenwood</td>
</tr>
<tr>
<td>E-Mail: <a href="mailto:rocky.coleman@colostate.edu">rocky.coleman@colostate.edu</a></td>
<td>Forestry 112  TBA TBA</td>
</tr>
<tr>
<td>Office Hours:</td>
<td>contact through CANVAS</td>
</tr>
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<td>TBA</td>
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Term: Spring 2018
Lecture Meeting Day /Location: sec 001: Mon 8 - 9:40 am / Glover 130
                              sec 002: Mon 12 - 1:40 pm / Military Science 200
Lab Location: Natural Resources 232
Course Credits: 4

Welcome!
...... to the world of ...... maps, computers, gps, gis, aerial photos, satellite images!

Course Overview
This course has been designed to provide natural resource students with an introductory, comprehensive and integrated foundation of the geospatial science disciplines of Global Positioning Systems (GPS), Geographic Information Systems (GIS) and Remote Sensing (RS) for natural resource applications.

Course Goals and Objectives
At the end of the course, students will have the ability to create (digitize) and manipulate (edit) shapefiles and simple geodatabases, create professional map output products, perform straightforward vector and raster analysis, be able to use GPS in conjunction with GIS projects, have an understanding of database management, and be able to incorporate aerial photos and satellite imagery into GIS projects.

Course Prerequisites
Junior Level Standing and familiarity with the basic Microsoft Office products: Excel, Powerpoint, and Word.
**Required Texts and Materials**

Please acquire a USB flash drive for storing and managing data.
There are NO Required textbooks.

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**Course Policies**

**Assignments**

Most assignments are to be submitted on CANVAS on or before the date specified by the lab instructor. Generally that will be 1 week from the date assigned. Assignments are due at the beginning of the students registered lab period. You will be to view feedback on your graded assignments on CANVAS. Check your grades often and view feedback. It will help with subsequent assignments.

**“Working Together” Policy**

- It is acceptable to ask other students for help on understanding procedures for a given assignment, BUT each student is to hand in their OWN UNIQUE assignment. It is NOT acceptable for a group (2 or more) of students to do an assignment together and simply change the name on their respective papers. It will be at the discretion of the instructors to determine what constitutes “unique”.
- Those who turn in identical assignments will receive a ZERO for that lab WITH the opportunity to re-do it on their OWN for half credit.

**Late Work Penalties:**

<table>
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<tr>
<th>If homework is submitted after due date</th>
<th>Penalty taken from total number of points possible</th>
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<tr>
<td>1 day to 1 week</td>
<td>Up to 25%</td>
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<tr>
<td>1 to 2 weeks</td>
<td>Up to 50%</td>
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<tr>
<td>After 2 weeks</td>
<td>Not accepted</td>
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There can be exceptions for those who have been severely ill and provide a doctor’s note. Consideration is also given for family emergencies. Discuss your situation with the instructor.

**Resubmitting Assignments**

- If you receive a grade on an assignment that is less than 60% of its worth, you have the option to re-do that assignment to receive up to half of the points back that you missed (NOT including late penalties).
- You will have 1 week (from the date the original grade was entered) to obtain help from an instructor and then resubmit the assignment. Resubmissions will not be accepted after 1 week from the date the original grade was recorded.

**Extra Credit Policy:**

There are NO extra credit assignment opportunities in this class, however, the instructor may give extra credit pop quizzes during lecture periods.
**Grades of "Incomplete":**
Per university policy, an instructor may assign temporary grade of Incomplete to a student who demonstrates that he or she could not complete the requirements of the course due to circumstances beyond the student's control and not reasonably foreseeable. A student must be passing a course at the time that an Incomplete is requested unless the instructor determines that there are extenuating circumstances to assign an Incomplete to a student who is not passing the course. When an instructor assigns an Incomplete, he or she shall specify in writing using the Department Incomplete Grade Form the requirements the student shall fulfill to complete the course as well as the reasons for granting an Incomplete when the student is not passing the course. The instructor shall retain a copy of this statement in his or her grade records and provide copies to the student and the department head or his or her designee. (Section I.6 of the *Academic Faculty and Administrative Professional Manual*)

**Disability Access:**
Colorado State University is committed to providing reasonable accommodations for all persons with disabilities. Students with disabilities who need accommodations must first contact Resources for Disabled Students before requesting accommodations from the professor. Resources for Disabled Students (RDS; [http://rds.colostate.edu/home](http://rds.colostate.edu/home)) is located in room 100 of the General Services Building. Their phone is (970) 491-6385 (V/TDD). Students who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations.

**Attendance Policy:** *"Showing up is half the battle".*
Attending lecture periods will enhance the students understanding of the concepts that will be applied in the laboratory sessions. There are no pre-planned points associated with lecture attendance but as mentioned earlier, the instructor may give occasional extra credit pop quizzes during lecture. These quizzes cannot be made up for ANY reason.

Attending laboratory sessions is where the student will learn to put course concepts into action and also acquire the necessary skills to work with geographic information systems. Often, there will be products created during lab that will be submitted for points at the end of lab. If the student misses a lab, they are responsible for making up the missed in-class work (within one week of the missed lab).

Attending exams (which will be given during lecture periods) are mandatory. If you have a valid reason for missing an exam, discuss this with the instructor BEFORE the exam date. If you are ill on the day of an exam, inform the instructor by email that you will not be there.

Participation in official University activities, e.g., an out-of-town athletic event, or special religious observances may provide a legitimate reason for an excused absence. The student is responsible for discussing this with the instructor at the beginning of the semester.
Final Exam Policy:
Final examination week is part of the regular semester. Student attendance shall be consistent with University policy.

If a student has three or more final examinations (not classes) scheduled for the same day or if conflicts of examination times occur, the student may negotiate a time change with the instructors involved. If the parties involved cannot find a mutually agreeable time, the Registrar’s Office indicates which courses must be changed. **Note:** The Registrar’s Office must be notified at least one week prior to Final Examination Week to allow instructors time to make appropriate accommodations. It is the student’s responsibility to initiate negotiations.

Any student who has a conflict with the examination schedule must inform the instructor as soon as possible before the examination. If an agreement cannot be reached between the instructor and student as to the appropriateness of a make-up examination the student should appeal to the department head.

http://www.registrar.colostate.edu/final-exams

Professionalism Policy:
Please arrive on time for all class meetings. If you arrive late, slip in quietly to a seat without disturbing the class. Please silence your phones, iPods, etc. during all classroom and lab lectures. Those not heeding these simple rules of etiquette will be subject to possible public humiliation administered by the instructor. When emailing the instructor or TAs, please include your name and the course number in your email.

Academic Integrity:
The Department of Forest and Rangeland Stewardship takes academic integrity seriously. At minimum, academic integrity means that no one will use another’s work as their own. The CSU writing center defines plagiarism this way:

> Plagiarism is the unauthorized or unacknowledged use of another person's academic or scholarly work. Done on purpose, it is cheating. Done accidentally, it is no less serious. Regardless of how it occurs, plagiarism is a theft of intellectual property and a violation of an ironclad rule demanding "credit be given where credit is due."
> Source: (Writing Guides: Understanding Plagiarism.

If you plagiarize in your work you could lose credit for the plagiarized work, fail the assignment, or fail the course. Each instance of plagiarism, classroom cheating, and other types of academic dishonesty will be addressed according to the principles published in the CSU General Catalog (see page seven, column two: http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf).

Of course, academic integrity means more than just avoiding plagiarism. It also involves doing your own reading and studying. It includes regular class attendance, careful consideration of all class materials, and engagement with the class and your fellow students. Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, we will ask to you sign the CSU Honor Pledge as part of completing all of our major assignments. While you will not be required to sign the honor pledge, we will ask each of you to write and sign the following statement on your papers and exams: “I have not given, received, or used any unauthorized assistance.”
### Tentative Course Schedule and Important Dates to Remember

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<tr>
<th>Week of</th>
<th>Lecture Topics (Mondays)</th>
<th>Laboratory</th>
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<tr>
<td>Jan. 15</td>
<td><strong>No Lecture - Martin Luther King Day</strong></td>
<td>1. Course Introduction; Maps on the Web</td>
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<td>Jan. 22</td>
<td>Map Scale; Cartography</td>
<td>2. Introduction to ArcGIS</td>
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<td>Jan. 29</td>
<td>More Basic Cartography</td>
<td>3. A) Projections, Coordinate systems, Datums</td>
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<td></td>
<td>B) Map Design</td>
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<tr>
<td>Feb. 5</td>
<td>RS: Airphoto Interpretation</td>
<td>4. Introduction to Airphotos / Photo Scale</td>
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<tr>
<td>Feb. 12</td>
<td><strong>Exam 1</strong></td>
<td>5. Airphoto Interpretation</td>
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<td>Feb. 26</td>
<td>GIS: Data Structure and Database Management</td>
<td>7. A) GPS: Tracklog Collection / Data Export</td>
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<td></td>
<td></td>
<td>B) GIS: Database Management</td>
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<td>Mar. 5</td>
<td>GIS: Data Capture</td>
<td>8. Data Entry Methods</td>
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<tr>
<td>Mar. 12</td>
<td>SPRING BREAK</td>
<td>NO LABS</td>
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<tr>
<td>Mar. 26</td>
<td>GIS: Raster data</td>
<td>10. Downloading / manipulating external data</td>
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<tr>
<td>Apr. 2</td>
<td><strong>Exam 2</strong></td>
<td>11. In class lab practical</td>
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<tr>
<td>Apr. 9</td>
<td>GIS: raster analysis</td>
<td>12. Raster Analysis methods</td>
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<tr>
<td>Apr. 16</td>
<td>RS: Multispectral Sensors</td>
<td>13. Image Analysis</td>
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<tr>
<td>Apr. 30</td>
<td><strong>Final Exam (tentative)</strong></td>
<td>15. The “Final” Lab</td>
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Department of Forest and Rangeland Stewardship
Basis for Final Grade

Survey of Knowledge (Exam) 1 10%
Survey of Knowledge (Exam) 2 10%
The Final Survey of Knowledge 10%
Weekly Exercises (combined) 55% (based on the 600 points below)
The “Not-So-Big Assignment” 15%
100%

Weekly Exercises (by points)
  Scale Problem Assignment 20
  Lab 1 – Part 1 (in lab) 10
  Lab 1 – Part 2 (assignment) 30
  Lab 2 – in lab assignment 5
  Lab 2m - map assignment 20
  Lab 3 – in lab assignment 5
  Lab 3 - assignment 40
  Lab 4 – in lab assignment 20
  Lab 4m - map assignment 20
  Lab 5 – in lab assignment 20
  Lab 5m - map assignment 20
  Lab 6 - assignment 40
  Lab 6m - map assignment 20
  Lab 7a - assignment 40
  Lab 7b – assignment 40
  The Boolean Assignment 20
  Lab 8 - assignment 40
  Lab 9 – in lab assignment 5
  Lab 9 - assignment 80
  Lab 10 – in lab assignment 5
  Lab 10 – “Not-So-Big Assignment” is assigned during Lab 10
  Lab 11 – in lab assignment 20
  Lab 12 – in lab assignment 20
  Lab 13 – in lab assignment 20
  Lab 14 – in lab assignment 20
  Lab 15 – in lab assignment 20

600 total

Grading Scale (%)

>90    A
80-90  B
70-80  C
60-70  D
<60    F