GEOG 4563 & 5563 - Earth Analytics: Fall 2017 Syllabus

{% include toc title="In This Lesson" icon="file-text" %}

Course location & time

- **Location:** SEEC N124 (distance learning classroom)
- **Time:** Mondays, 9:30 - 12:20

Instructor & TA

- **Instructor:** Dr. Leah A. Wasser (leah.wasser@colorado.edu)
  - Office. S346 SEEC
  - Ph. 303.735.4637
- **Teaching Assistant:** Christa Torrens (christa.torrens@colorado.edu)

Office hours

Day	Time	Location	Who
Thursdays	10:00 am - NOON	S346 SEEC	Leah
===			
Thursdays	4:00 pm - 6:00 pm	S340 SEEC	Christa

Learning Outcomes

At the end of this course you will be able to:

- Use the `R` programming language to open and visualize various types of data.
- Navigate and use the `RStudio` environment for `R`.
- Find and download different types of data available from various agency and other sources.
- Create data-driven reports that link data processing methods, data and results.

Course requirements

All students will need a working laptop to use in class each week.

Online participation

If you enrolled in the online section of this course, you can join the course remotely using ZOOM. Please visit D2L to access the zoom link.

Click here to get help getting Zoom up and running

Get help - Piazza online forums

There are several ways that you can get help when you get stuck in this class.

1. Attend the scheduled office hours.
2. Post your question on Piazza - Earth Analytics .

Read more about how to use Piazza lower down on this page.

Textbook

There is no required textbook for this course. We will be drawing from a suite of papers, blog posts, text and other resources throughout the course. As you find other resources that help you through the class, please feel free to share them with the instructor and your classmates.

Download course Fall 2017 syllabus (.pdf)

Course overview

This multidisciplinary course will address major questions in Earth science and teach students to use the analytical tools necessary to undertake exploration of heterogeneous 'big scientific data'. This course is designed for upper level (junior / senior level) undergraduate students and graduate students.

Throughout the course we will use computationally intensive techniques to address scientific questions. We will use a suite of different types of publicly available data including:

- Satellite and airborne lidar and spectral remote sensing data,
- Data collected using distributed *in situ* (on the ground) sensor networks and
- Social media data

This course is technical. We will use the `R` scientific programming environment and the `RStudio` interface to work with data. You will code every week!

Grading

All grading for this course will follow the CU grading policies. **Late assignments are not be accepted in this course.** If there are extenuating / university approved circumstances university-approved activity, illness, injury, family emergency, or religious observance that prevents you from completing an assignment on time, please get in touch with the instructor or the course TA as soon as possible and accommodations will be made for you to turn in your assignment within a reasonable time period.

Course grades will be calculated using the following assignments:

Assignment	Percent of Credit
Homework / Assignments	45%
Mid term project	15%
Final group presentation	10%
Final individual project report	20%
===	
Participation	10%

Final letter grades

Please use the table below to understand how your numeric grade - listed in D2L related to your final letter grade in this course.

Score	Grade
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
===	
F	0-59

Communication

All email messages about this course should include "earth-analytics" in the subject line and be signed with your full name. Please use your official **CU email address** when communicating with your course instructors.

If your email is not personal in nature, but rather a question about the homework, issues with the course website, or issues with R, please

1. See if the question has already been asked on Piazza
2. If the question hasn't already been asked, please **post your question to PIAZZA**.

About Piazza

This semester we will use Piazza for class discussion. Piazza will help you get help faster and more efficiently from classmates, the class TA, and myself. Rather than emailing questions to us, post your questions on Piazza.

Find our class page at: PIAZZA

1. To get started, be sure to create an account with piazza. We will use this tool on the first day of class so please do this ahead of time.
2. You should have received an invitation to join our piazza earth-analytics space. If you didn't, please email the instructor or the course TA to get access.

Piazza rules

It is important that you follow the course guidelines when posting to Piazza.

Do:

- Post questions that you have about homework assignments
- Post issues that you find with the website – typos, errors, points of confusion
- Answer other questions if you can (you will receive participation points for posting on piazza so use it)

- **upvote** questions that you have as well or that you think are written well
- Be respectful of your peers. All questions related to data and earth analytics are good questions.

Do not:

- Post any content that is in any way offensive or that violates University codes of conduct (see links below)
- Post explicit solutions to homework assignments (help each other out but don't post the answer)
- Post an entire `.Rmd` document on Piazza - rather post a small snippet of code that is causing problems and the associated code error

When posting questions about coding issues to Piazza, please do your best to provide an example of the specific code error that you are encountering.

Example. The code

```
read.cs("filename")
```

returns this error:

```
error here
```

In the example above the fix would be to make sure your function name is correct.

Course content

Material pertaining to this course will be communicated through the course website. {{ site.url }}. Students are expected to check this website daily for assignment and content updates.

Course policies

Attendance

Attendance is encouraged for all class sessions. We have found that students who attend class often do better than those who don't. However, with that said the entire course is available in an online format and you will be able to participate in many activities remotely using the Piazza forum.

Participation

Course participation will be evaluated as a part of this course. Your course participation grade is calculated using a combination of

1. Answering questions posted by students on the Piazza forum
2. Participation in discussions and group work in class
3. Identifying issues with the course website and posting them on Piazza

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise the course instructor of this preference early in the semester so that they can make appropriate changes

to their records. Please also see the policies for Student Classroom and Course-Related Behavior and the Student Honor Code.

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, "Protected Classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been discriminated against should contact the Office of Institutional Equity and Compliance. For further details, please also see CU-Boulder's Discrimination and Harassment Policy and Procedures.

Religious observances

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See the policy document on Observance of Religious Holidays and Absences from Classes and/or Exams for further details.

Academic Standards

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the Academic Integrity Policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Information on the Honor Code is available from the Honor Code Office. If you have any questions about proper citations, plagiarism, etc., please don't hesitate to ask!

Students with a Disability

If you have any type of disability (emotional, medical, physical, learning, etc.), there are support systems, resources, and accommodation actions available to you. If you wish to access any of these supports, resources or accommodations, I encourage you to contact Disability Services in the Office of Diversity, Equity and Community Engagement, to secure necessary academic accommodations. Please Note: You are under no obligation to disclose your disability.

If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see Temporary Medical Conditions: Injuries, Surgeries, and Illnesses guidelines under Quick Links at Disability Services website and discuss your needs with your professor.

Course components

Homework assignments

Each week there will be a homework assignment. Use the materials on the website including readings, tutorials and links to other resources in addition to skills and concepts that we learn in class to complete the

assignment.

Weekly readings

Readings are posted every week along with the homework assignment for that week. The material for each week will be posted no later than the Tuesday before the next weeks' class. Weekly readings are subject to change. Be sure to check the weekly assignment page for the readings **each week**.

Final project (subject to change)

Assignments that you complete will provide you with the skills and resources needed to complete the final project. The final project will consist of a group presentation and an individual report that you submit in `R Markdown` and `.html` or `.pdf` format.

Important: Please note that the course schedule and content as discussed above is subject to change. This course content schedule is not designed as a contract. Rather, it is an overview guide to the materials that we will review during the semester. {: .notice–success}