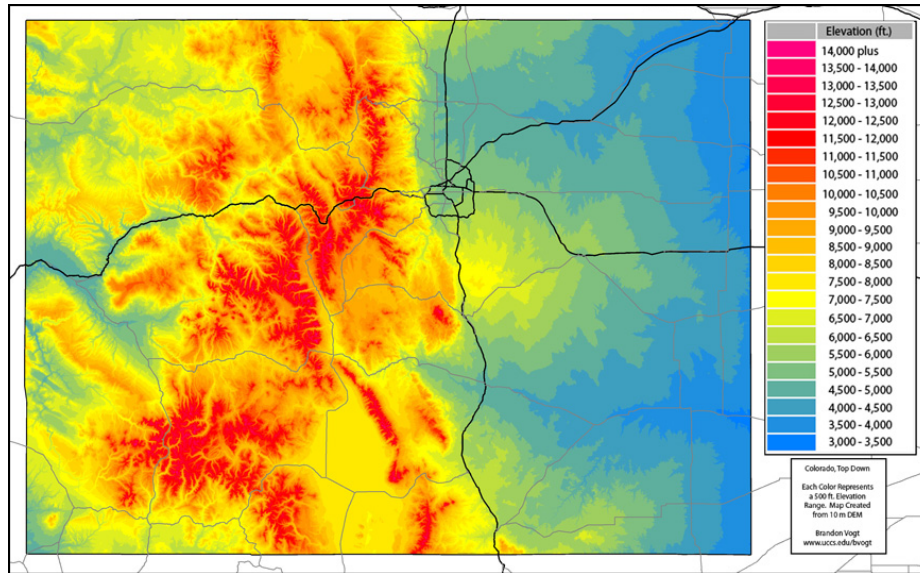


# DIGITAL EARTH (GES2050) - SPRING 2019

**Instructor:** Dr. Brandon Vogt **Email:** [bvogt@uccs.edu](mailto:bvogt@uccs.edu) **Office:** Columbine 2011  
**Class meets:** Tuesdays 9:25 AM - 12:05 PM, Columbine 329  
**Office hours:** Thursdays 10:00 AM - 1:00 PM and by appt. (OFFICE HRS. MAY CHANGE)  
**Course website:** <https://academics.uccs.edu/bvogt/courses/ges2050/>



Colorado topography with major roads. 500 ft. contour interval. Map compiled in ArcMap from US Geological Survey 10 M digital elevation model (DEM).

## **The concept**

A 'Digital Earth' is a visionary concept that seeks to create a digital representation of the Earth - "a virtual 'mirror world,' storing and managing access to everything that is known about the planet" (Grossner et al. 2008). This geospatial information, and access to it, is important so that people can develop a better understanding of natural and cultural characteristics of the world, address world problems, and make sound decisions.

## **The course**

Over the past several decades, remarkable developments have been made in geospatial technologies in areas of data collection, data management, data analysis, data delivery, and data representation. *Students in Digital Earth will gain experience working with a suite of emerging geospatial technologies. Digital Earth provides students with context (theory) and basic skills (practice) in cartography, geographic information systems (GIS), remote sensing, global positioning systems (GPS), and geographic visualization (geovisualization).* These technologies are applied to diverse fields and phenomena in the physical, natural, and social sciences in *exciting ways*. Throughout the course, students learn how to access relevant digital information and gain experience interacting with and using the information appropriately. Having completed the course, students will possess a highly diversified geospatial toolkit that will streamline the transition to upper-level geospatial tools courses and will provide exposure to the breadth of the field of geography. Course content is delivered through a mix of lectures, computer-based labs, group exercises, homework, readings, field-based data collection, and field trips.

## **Geospatial technologies and related topics covered in Digital Earth**

The following core geospatial technologies are covered: 1) cartography, 2) geographic information systems (GIS), 3) remote sensing, 4) global positioning systems (GPS), and 5) geographic visualization (geovisualization). Additionally, the following related topics are covered: 1) Digital Earth concept, 2) basic Windows navigation, 3) file and directory structure, 4) web page creation and web publishing, 5) raster and vector data models, 6) common geospatial data file types, 7) data delivery formats and portals, 8) database structure and database query, 9) virtual globes including Google Earth Pro, 10) geomorphometry / digital terrain modeling, 11) ArcGIS Online, 12) light detection and ranging (LiDAR) theory & practice, 13) Structure from Motion (SfM) 3D modeling, and (maybe) 14) drone basics.

## Learning objectives of Digital Earth are to:

- explore principles, concepts, and uses of geospatial technologies to create a Digital Earth
- excite students about geography and geospatial technologies
- introduce students to geospatial technologies in captivating ways
- explore what GIScientists do (e.g., career application areas)
- develop familiarity with the terminology of geospatial methods
- understand the role that scale plays in the measurement and mapping of digital data
- know how to select and apply an appropriate tool for digital data viewing and analysis
- obtain the basic skills needed to take more advanced geospatial courses

## Grading

**50% Exams:** 2 @ 25%

**45% Computer-based exercises:** your website plus 8 labs = 9 exercises @ 5% each

### **5% Attendance / Participation:**

Attendance is required and is taken each class meeting.

Each absence without doctor's / nurse's / jury duty note = -2% of course grade.

Each missing 'homework,' 'assignment,' or 'group participation' exercise = -2% of course grade.

All attendance points are lost if students text, sleep, work on PCs during lecture, show up more than 15 mins. late to an exam, and / or otherwise disrupt class.

Students cannot pass Digital Earth if they miss more than 3 classes (without drs (or similar) note).

The proven best way to do well in Digital Earth is to not miss any classes and to show up on time for exams.

- **Exams:** Two exams are given - a midterm and a final - and each covers approximately one-half of the course content. The final is comprehensive. Both exams include a combination of multiple choice, matching, true-false, and short answer. There are no make-up exams and students cannot take an exam late (or early without a month's notice). If a student shows up to an exam more than 15 min. late, all attendance points are lost. If an exam is missed, exam counts as a 0. Each exam is given twice during the testing time: part A (80% of total exam grade) and part B (20% of total exam grade). Students must attend BOTH parts of the exam for the exam to count towards a grade.
- **Lab exercises:** Lab specifics and deliverables are discussed the day of the lab. All lab assignments are available on the class website the day of class. All labs are 'turned in' for grading by posting to a student web site on [coursework.uccs.edu](http://coursework.uccs.edu) server. The instructor grades all student lab work by visiting students' websites. All labs are due and are graded the Sunday evening (@ 5:00 pm) before the next week's (Tuesday) class. This means that students have parts of SIX DAYS to complete labs.
- **Lab exercises:** Students usually will not complete labs during class time. This means that all students 1) must set aside additional time outside of class time to work on GES2050 labs (IF YOU CANNOT COMMIT TO THIS, DO NOT TAKE THIS COURSE), and 2) must know where on campus to find computers with the necessary software.
  - **Lab grading agreement #1:** *After labs are initially graded, no further action will be taken by the instructor to (re)grade labs UNLESS the student sends an email (from their UCCS account) to instructor ([bvogt@uccs.edu](mailto:bvogt@uccs.edu)) announcing that the lab is ready to be graded.*
  - **Lab grading agreement #2:** No more than 1/2 of the total points can be earned for labs posted within one week after the regular due date and time.
  - **Lab grading agreement #3:** No points can be earned for labs posted one week after the regular due date and time.
- **Homework:** Homework is assigned, and involves completing ArcMap tutorials, collecting data in a group, and/or completing Q/A related to tutorials. No points are earned for completed homework; however, the material covered on homework is included on exams and counts in 'Attendance / Participation' grade.
- **Field trips:** The class may visit the National Weather Service (NWS) Forecast Office in Pueblo. Field trip dates will be announced in class early in the semester.

- **Extra credit:** Extra credit may be granted for attending certain on-campus talks/lectures, including GES colloquia and UCCS Cafés Scientifique. Qualifying extra credit opportunities will be announced in class.

### **Textbook, readings, and PowerPoint presentations**

- > **Textbook:** None required.
- > **Readings:** On occasion, readings are required. Readings are either handed out in class or are downloadable from course website and/or the instructor's Outbox and/or Canvas.
- > **PowerPoint presentations:** Most lectures are outlined using PowerPoint presentations. PowerPoints are available to view and to download from Canvas one or two days after the class period.

### **Canvas**

Canvas is used for grading, feedback on graded items, PowerPoints, and attendance

### **Drops / deadlines – Spring 2019**

The last day to drop and receive a full refund of tuition and most fees is 2/6/2019. Do this through UCCS portal – no need for faculty approval. The last day to drop a course without special approval from instructor and LAS Dean is 4/5/2019. Do this through UCCS portal. After 4/5/2019, students will need to have extenuating circumstances AND documentation to have the course drop considered by the Dean's office. Students will be asked to bring documentation with them when requesting a Dean's signature. Dropping a course because of a poor grade is not considered an extenuating circumstance. [Add / drop form](#).

### **UCCS email policy**

UCCS E-mail (username@uccs.edu) is the official means for communicating with students. To assure the reliability and dependability of using e-mail for communication with students, all enrolled students have been assigned an official campus e-mail account. Students are expected to check their campus e-mail account daily.

### **Academic expectations**

Plagiarizing, using sources without documentation, cheating, fabrication and falsification, multiple submission, and misuse of academic materials represent intellectual theft and violate UCCS's Academic Honor Code. Though Brandon encourages students to work together and talk through issues, all final work should be that of the individual student. Cheating (Brandon's call) will be embarrassing and will lead to a 0 on any exam or lab. For more info., see UCCS' student policies on [academic principles](#) and [academic dishonesty](#).

### **Texting / Laptop Use / Sleeping / Headphones / Arriving Late / Missing Class**

Texting / interacting with phones distracts Brandon and other students. Students will not earn any participation points if caught texting / interacting with phones to any capacity during exam time. The use of laptops/iPads, etc. for taking notes is quite appropriate. However, using these devices for emailing, texting, watching videos, Facebook management, etc., will result in the loss of all participation points. Students who wear headphones and/or fall asleep in class (one time) will not earn any participation points. Also, students who are regularly late or miss more than two classes (unexcused) will not earn participation points.

### **Students with disabilities**

Students with disabilities who qualify for academic accommodations must provide a letter from Disability Services (DS) and discuss specific needs with me during the first two weeks of class. The Disability Services Office is located in Main Hall # 105, (719) 255-3354.

### **Military students**

If you are a military student with the potential of being called to military service and/or training during the semester, you are encouraged to contact Brandon no later than the second week of class to discuss the class attendance policy. For more info., visit: <http://www.uccs.edu/~military/>

### **Classroom code of conduct**

UCCS has established a code of conduct and classroom behavior policy to maintain the general

welfare of the University community. The University strives to make the campus community a place of study, work, and residence where people are treated with civility, respect, and courtesy.

### **Details on 'Pyramid Exam' format**

*Information below extracted from the ideas of Dr. Barbara Munn at Sacramento State*

In a pyramid exam, students take the same exam twice during a class period. First, all students take the exam individually and with closed notes and closed book (Part A). Part A is worth 80% of the exam grade. After all students have turned in exams, the same exam is taken in small groups (Part B), also closed notes and closed books. During Part B, students can freely talk with anyone in the room (except the instructor)! to complete the exam. Part B is worth 20% of the exam grade.

Exam grades are calculated as follows:

$$(((\text{total group exam score}/100)*0.20) + ((\text{total individual exam score}/100)*0.80))*100$$

The main objective of the pyramid exam is for students to know and understand the answers to the exam questions at the end of the testing period. While taking the exam in groups, students are encouraged to argue, debate, and be forceful when a correct answer is known. Internalize that students do not perform well on Pyramid Tests without studying: Part A, the individual, closed-note and closed-book portion of the exam, is worth 80% of the total exam grade.

**ALWAYS USE YOUR UCCS EMAIL ACCOUNT (not Gmail, iCloud, Outlook, Mail, Live, GMX, Yandex, etc.) TO COMMUNICATE WITH BRANDON**