**CVEG 58603: Sustainability in Civil Engineering**

# Course Information:

**Credit Hours:** 3 Credit Hours

**Instructor:** Andrew Braham, Ph.D., P.E. (afbraham@uark.edu)

**Office Hours:** By email appointment. My goal is to respond to any course related email within 24 hours, feel free to send a reminder if I don’t!

**Texts/References:** All required texts and references will be provided as the semester progresses. There will be no required material to purchase, everything will be available through the University of Arkansas online library or available by download online free of charge.

# Course Description:

# This course seeks to provide civil engineering students with concepts to allow them to begin driving toward incorporating sustainability as an essential component of the profession. In addition, students will develop tools that address sustainable project development, incorporate proper standards and protocols, expand technical capacity and communication, and advocate sustainable concepts. This will be achieved by laying a strong foundation in the three pillars of sustainability: economic, environmental, and social. Next, various civil engineering topics will be discussed through the lens of these three pillars. Topics include all facets of civil engineering, including environmental, geotechnical, structural, transportation, and construction management. Next, different sustainable certification programs will be reviewed, and the course will wrap up with a glimpse into tomorrow’s sustainability.

# Course Objectives:

* Examine the societal benefits of sustainability through existing civil engineering concepts, social media and civil engineering, the Human Development Index, and the Social Impact Assessment.
* Quantify the economic benefits of sustainability through traditional sustainable economics, present worth, future worth, annual worth, life cycle cost analysis, rate of return, and benefit/cost ratio.
* Evaluate the environmental benefits of sustainability through life cycle assessment, product category rules, environmental product declarations, ecological footprint, water footprint, and planet boundary.
* Justify the feasibility and benefits of sustainability in environmental, geotechnical, structural, transportation, construction management, and sustainable certification programs.
* Organize and deliver effective written communications.

# Course Requirements:

Grades for this course will be based upon mastery of course concepts as demonstrated by successfully completing:

* Quizzes (eight, two in Week 1 and 2, one every other week except for the week of Exam 01 and Exam 02)
* Muddiest point posts (seven, one per week except last week)
* Muddiest point replies (seven, one per week except last week)
* Application memos (three, one due the second, fourth and sixth week of class)
* Final report (one, due the last day of class on a civil engineering topic of your choice)
* Midterm Exam (one)
* Final Exam (one) – note, the final is cumulative.

# Notes on Course Requirements:

* Quizzes
  + Will need to score an 80% or more on your quiz to move on in the course.
  + May take the quiz as many times as you’d like but the questions are randomized for each quiz attempt.
* Exams
  + Must score a 70% or more on both the midterm and the final.
  + Only have three attempts to complete both exams.
  + The final is cumulative.
* Please see full assignment files for muddiest points, application memos, and the final report.
  + I would recommend reading all of these on the first day, to give you an overview of what is coming down the pipeline!

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| Assessment | Total Points | % of Final Grade |
| Quizzes (8, 20 points each) | 160 | 16% |
| Memos (3, 60 points each) | 180 | 18% |
| Muddiest points and comments (7 sets, 20 points each) | 140 | 14% |
| Exams (midterm 150 points; final, cumulative, 200 points) | 350 | 35% |
| Final report (1) | 170 | 17% |
| **Total** | **1000** | **100%** |

# Grading:

## Grading Scale:

* A  > 90%
* B  80 - 89%
* C  70 - 79%
* F  <70%

# Late Work Policy:

Students should reach out to the instructor to make prior arrangements if they will not be able to submit work by the assigned, original due date. If the student emails the instructor beforehand with an alternative due date, and the alternative due date is reasonable, the enforced due date will be changed. If an email is not sent before the original due date, the original due date will stand.

Regardless, once due date is set, 25% will be deducted if the assignment is 0-24 hours late, 50% will be deducted if the assignment is 24-48 hours late, and the assignment will get a zero if it is not turned in within 48 hours.

# Family Educational Rights and Privacy Act (FERPA):

The Family Educational Rights and Privacy Act (FERPA) protects a student’s academic and other educational records from unauthorized access. This protection extends to email correspondence between a student and the University of Arkansas faculty and staff. To provide reasonable assurance that emails are from the student, all university or class related emails must be sent from the student’s uark.edu email account. Additionally, university or class related emails must be sent to the student’s uark.edu email account. This means that I cannot acknowledge emails sent from your personal or work email accounts, and I cannot send emails to your personal or work email accounts.

# University of Arkansas Academic Policy Series 1520.10:

University of Arkansas Academic Policy Series 1520.10 requires that students with disabilities are provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodation, please contact me privately at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through the Center for Educational Access (contact 479–575–3104 or visit <http://cea.uark.edu> for more information on registration procedures).

# Regular and Substantive Interaction:

This course meets the regular and substantive interaction requirements for online courses. I will do the following:

* monitor your academic engagement and success and will contact you regarding your progress via your UARK email.
* regularly contact you via your UARK email or other course tools regarding course content and expectations.
* provide detailed and personalized feedback on your papers and projects.
* respond to student questions via UARK email or other method in a timely manner.