# SOILS AND CONCRETE

BCN 3223

3 CREDIT HOURS

FALL 2023

RNK 210

MW AT 10:40

TH AT 12:50 PM TO 2:45 PM

**INSTRUCTOR (REQUIRED):** *Larry C Muszynski*

*RNK 327*
*larrym@ufl.edu*
*352-273-1160*

**OFFICE HOURS:** *MW 9:35 am*

**COURSE TA OR COORDINATOR:** *Wolfgang Ryor, wdryor3871@ufl.edu*

**COURSE WEBSITE*:*** http://elearning.ufl.edu

**COURSE COMMUNICATIONS:** Students can ask questions by posting general questions to the discussion board on canvas and ask private questions sent to my personal ufl.edu e-mail address.

**REQUIRED OR RECOMMENDED TEXTBOOKS:**

1. Design and Control of Concrete Mixtures, Portland Cement Association, ($17^{th}$ edition).
2. Soils and Foundations, Liu and Evett ($8^{th}$ edition).

**MATERIALS AND SUPPLIES FEES:** NA

(1) **ADDITIONAL RESOURCES:** Building Code Requirements for Reinforced Concrete, American Concrete Institute, (latest edition).
(2) Soils in Construction, Schroeder, Dickenson & Warrington, 5th edition

**COURSE DESCRIPTION:** This course will familiarize students with the construction process that includes, site clearing, soil mechanics, testing, foundations, concrete mix design, concrete construction practice, testing, safety, and ethics.

**PREREQUISITE KNOWLEDGE AND SKILLS:** **Prerequisite:** BCN 1210 and BCN 2405

**COURSE GOALS AND/OR OBJECTIVES:**

1. Understand the basic principles of concrete construction in hot/cold weather including concrete making materials, concrete mix design, and concrete testing (ACCE SLO 8 and 15).

2. Understand how concrete embodied energy can be reduced by replacing Portland cement with fly ash/slag and other pozzolanic materials (ACCE SLO 18).

3. Perform basic plastic and hardened concrete tests (ACCE SLO 8 and 15).

4. Prepare accurate report and interpret concrete and soil test data (ACCE SLO 1).

5. Understand the basic principles of soil mechanics, including soil classification, soil compaction, soil testing and reading soil borehole logs (ACCE SLO 8).

6. Understand basic principles of design and construction of shallow and pile foundations (ACCE SLO 19).

**INSTRUCTIONAL METHODS:** 2 – 1 hr lectures and 1 - 2 hr in-person laboratory/lecture per week. Lab exercises and the Midterm exam will occur on a Thursday.

## COURSE POLICIES:

**ATTENDANCE POLICY:** IN-PERSON IS REQUIRED. Instructor may choose the days for taking the roll.

**QUIZ/EXAM DATES/POLICIES:** No make-up quizzes will be offered or given.

**MAKE-UP POLICY:** No make-up quizzes will be offered or given.

**ASSIGNMENT POLICY:** Assigned problems are due at the beginning of the next lecture period. LATE HOMEWORK WILL NOT BE ACCEPTED. Homework may be graded by detailed checking or based on overall attempt. Instructor may choose not to grade some homework. Homework grades will be determined and may be computed according to these policies.

**COURSE TECHNOLOGY:** Microsoft Office and Zoom if required.

- http://helpdesk.ufl.edu
- (352) 392-HELP - select option 2

**ONLINE COURSE EVALUATION:**

"Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semesters, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

## UF POLICIES:

**UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES:**

"Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc ) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester."

**UNIVERSITY POLICY ON ACADEMIC CONDUCT:** UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic

misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

**CLASS HONOR POLICY:**

The Rinker School policy agreed to by all faculty is that professors will **always** provide a failing grade **for the entire course** in which a student is found to be cheating on any test, quiz, paper, or project or any other academic dishonesty.

## GETTING HELP:

For issues with technical difficulties for Canvas, please contact the UF Help Desk at:

- http://helpdesk.ufl.edu
- (352) 392-HELP (4357)
- Walk-in: HUB 132

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at http://www.distance.ufl.edu/getting-help for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

## GRADING POLICIES:

**METHODS BY WHICH STUDENTS WILL BE EVALUATED AND THEIR GRADE DETERMINED AND INFORMATION ON CURRENT UF GRADING POLICIES FOR ASSIGNING GRADE POINTS:**

| Assignment | Points or percentage |
|---|---|
| Quiz 1 | 50 points |
| Mid Term | 100 points |
| Homework | 30 points |
| Quiz 2 | 50 points |
| 6 Lab reports | 150 points total |
| Final Exam | 100 points |

*** [Include specific details about the assignments as necessary]*

**GRADING SCALE:** *[List the specific grading scale for this course. For more information, see:* http://www.isis.ufl.edu/minusgrades.html*]*

**Grades will be computed according to the University of Florida Grading Policy.**

| | |
|---|---|
| A | 93-100 |
| A- | 90-92.9 |
| B+ | 87-89.9 |
| B | 83-86.9 |
| B- | 80-82.9 |
| C+ | 77-79.9 |
| C | 73-76.9 |
| C- | 70-72.9 |
| D+ | 67-69.9 |
| D | 63-66.9 |
| D- | 60-62.9 |
| E | less than 60 |

## COURSE SCHEDULE:

### A WEEKLY SCHEDULE OF TOPICS AND ASSIGNMENTS:

| Week | Topics | Assignment |
|---|---|---|
| 1 and 2 | Introduction to Soil, Soil Exploration and Reports | Ch. 1 & 3 |
| 3 | Properties of Soils<br>• **Laboratory 1 : Soils Classification** | Ch. 2 |
| 4 | Soil Compaction<br>• **Laboratory 2: Soil Compaction** | Ch. 4 |
| **Quiz 1……** | | **TBD** |
| | • **Laboratory 3: In-Place Unit Weight** | |
| 6 and 7 | Shallow & Pile Foundations | Ch. 8 and 9 |
| **Midterm Exam** | | **TBD** |
| 8 and 9 | Concrete Fundamentals | (PCA) |
| 10 | Concrete Testing – Aggregates & Plastic Concrete<br>• **Laboratory 4: Aggregate Properties** | (PCA) |
| 11-12 | Mix design<br>• **Laboratory 5: Mix Design I** | (PCA) |
| **Quiz 2……** | | **TBD** |
| 13 | Concrete Mixing, Placing and Curing<br>• Cast-in-Place<br>• Tilt-Up | (PCA) |
| 14 | Concrete Testing – Hardened Concrete<br>▪ L**aboratory 6: Mechanical Properties** | (PCA) |
| 15 | Hot-Weather Concreting | (PCA) |

Final – TBD

**Disclaimer: This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.**