Instructor Information

**Instructor**  
Hsein Juang, PhD, PE  
**Office**  
214 Lowry Hall

**Office Hours**  
By appointment  
**Telephone**  
(864) 656-3322

**e-mail**  
hsein@clemson.edu  
**Skype account:**  
skype_clemson

*Note: Email is the best way to reach me, as I will be traveling often this summer.*

Course Description
Relationship of geology to soil formations, planning of site investigation, sampling procedures and determination of soil parameters. Analysis and design of shallow and deep foundations and earth retaining structures.

Course Objectives
This is a senior-level, technical elective course on foundation design. The main objective is to learn to apply the principles of soil mechanics to foundation design. The student learns various elements of foundation design, including site investigation and determination of soil parameters, selection of foundation type, analysis and design of foundations and retaining structures.

Prerequisite
Geotechnical Engineering (CE 321). This prerequisite will be strictly enforced. A student who does not have this prerequisite satisfied will be dropped, and will not receive a final grade.

Required Text

Course Topics - These general topics and chapters will be covered in this course.

<table>
<thead>
<tr>
<th>Topics (Units)</th>
<th>Period &amp; Homework/Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction &amp; foundation performance requirements Handout</td>
<td>Starting on May 15</td>
</tr>
<tr>
<td>Subsoil Exploration</td>
<td>Ch 2</td>
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<tr>
<td></td>
<td>Ending on May 24</td>
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<tr>
<td></td>
<td>HW #1 due midnight May 26 EST</td>
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<tr>
<td>Shallow foundations: Bearing capacity</td>
<td>Ch 3</td>
</tr>
<tr>
<td></td>
<td>Starting on 5/27, ending on 5/31</td>
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<tr>
<td></td>
<td>HW #2 due midnight June 2 EST</td>
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<tr>
<td>Bearing capacity: Special cases</td>
<td>Ch 4</td>
</tr>
<tr>
<td></td>
<td>Starting on 6/3, ending on 6/7</td>
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<tr>
<td></td>
<td>HW #3 due midnight June 9 EST</td>
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<tr>
<td>Allowable bearing capacity and settlement Handout</td>
<td>Starting on 6/10, ending on 6/14</td>
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<tr>
<td>Shallow foundations: Design</td>
<td>Ch 5</td>
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<tr>
<td></td>
<td>HW #4 due midnight June 16 EST</td>
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<tr>
<td>Long summer break</td>
<td>6/17 – 6/21 (Break)</td>
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<tr>
<td>Lateral earth pressure &amp; retaining walls Ch 7 &amp; 8</td>
<td>Starting on 6/24, ending on 6/28</td>
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<tr>
<td></td>
<td>HW #5 due midnight June 30 EST</td>
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<tr>
<td>Sheet pile walls</td>
<td>Ch 9</td>
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<tr>
<td></td>
<td>Starting on 7/1, ending on 7/5</td>
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<td></td>
<td>HW #6 due midnight July 7 EST</td>
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<tr>
<td>Pile foundations</td>
<td>Ch 11</td>
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<td></td>
<td>Starting on 7/8, ending on 7/19</td>
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<td></td>
<td>HW #7 due midnight July 21 ST</td>
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<tr>
<td>Drilled shaft foundations</td>
<td>Ch 12</td>
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<td></td>
<td>Starting on 7/22, ending on 7/26</td>
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<tr>
<td></td>
<td>HW #8 due midnight July 28 EST</td>
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<tr>
<td>Review of materials &amp; preparation for final exam</td>
<td>Starting on 7/29, ending on 8/1</td>
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</tbody>
</table>
**Learning Outcomes**
The course contributes to the following Civil Engineering Program Outcomes: to gain knowledge of engineering in four technical areas of civil engineering; to be able to produce designs for systems, components, or processes; to be able to identify, formulate, and solve engineering problems; and to be able to use modern techniques, skills, and engineering tools.

**Grading**

Determination of Final Grade:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework/Project/Quiz</td>
<td>60%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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</tbody>
</table>

*Each homework/project is treated like a quiz and counts 6% (6 points). However, homework/project #1 and #7 each counts 12% (12 points). See class policies (below) for final exam.

**For CE 621 students: Extra readings/assignments/mini projects will be required. Final Exam problems for CE 621 will be different.**

**Grade scale:** A: >90%; B: 80-89%; C: 70-79%; D: 60-69%; F: <60%

**Class Policies**

Class attendance will not be explicitly tracked, since it is an online course. However, not keeping up with the course will hurt your grade in a general way. Each student is responsible for all announcements made in on BlackBoard and sent to your Clemson University e-mail account. **It is assumed that students will receive emails sent to their Clemson email addresses.**

Everyone is required to take **final exam in person** in a classroom in Lowry (room no. to be announced later) on **Saturday, August 3, at 1-4PM**. You must agree to this arrangement and be able to attend the final exam as scheduled in person to take this course. In case of emergency or special needs, you must work with the instructor to make a special arrangement for taking the final exam. Approval of such special arrangement is at the discretion of the instructor.

Every student in this course must send an email to the instructor’s email account (hsein@clemson.edu) before midnight May 19 EST to acknowledge his/her consent to all policies to remain in this class.

**Course Guidelines**

1. Continuous attention to the material is strongly recommended. Students are responsible for the material covered and the announcements made. **Students must be self-motivated and maintain an effective and close communications (email or phone) with the instructor and TAs.**
2. Workload in this class is estimated roughly at **7 hours per week.**
3. Students are responsible for all e-mails sent by the instructor and TAs to their Clemson University e-mail account.
4. Students are responsible for all announcements placed on the BlackBoard Announcement and/or distributed through e-mail to their Clemson e-mail accounts.
5. The Engineering Honor Code will apply to all work done in this course. Consistent with the policy specified in the Student Handbook, cheating or any other act of dishonesty during homework/project assignments or examinations will be handled in accordance with University Policy. In compliance with the Honor Code, the students are not to copy homework/project from each other or solution manual. However, studying and working homework problems together is not seen as a violation of the Honor Code.

**Academic Integrity**

I understand that students may choose to study with other students. It must be understood that the work submitted by each student represents the efforts and work of that student. The Provost has asked that every course syllabus include the following statement:
“As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a ‘high seminary of learning.’ Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

I assume that all students are familiar with this policy.

**Course Management System**
Clemson University has selected BlackBoard as its Course Management System. It will be the primary method by which information is given to the students and by which the students provide information to the instructor.

In this online course on [bb.clemson.edu](http://bb.clemson.edu), you will interact with the content and instructor on an at least weekly basis using lectures and assignments or asynchronous discussions (meaning e-mail). *It is assumed that students will receive emails sent to their Clemson email addresses.*

**Minimum technical requirements:**
- Access to email and the Internet
- Browser compatible with the current version of BlackBoard used at Clemson University
- Presentation software (MS PowerPoint is used by the instructor to develop presentations; PDF version will be posted and thus Adobe Acrobat Reader is needed)
- Word-processing software (such as Word 2003 or 2007 or 2010)
- Since this course may involve sending and receiving large files of information, you may find that a high speed Internet connection is advantageous.

**Getting Started**
The electronic classrooms for this course are located in Blackboard. To gain access to the course you need your Clemson Student ID (username) and password.
1. Open your Internet browser to the Clemson University BlackBoard home page at [bb.clemson.edu](http://bb.clemson.edu)
2. Login with your Clemson University Username and Password
3. The Welcome page will list your current courses
4. Select this course (Course Name: S1305CE421621400) and enter the Blackboard classroom

**The Blackboard Classroom for CE 421-621**

<table>
<thead>
<tr>
<th>Course ID: hsein-S1305CE421621400</th>
<th>Course Name: S1305CE421621400</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Information” Tab (left panel on Blackboard)</td>
<td>Syllabus, Course materials (Lecture in a PowerPoint (or PDF) document &amp; other handouts), announcements</td>
</tr>
<tr>
<td>“Content” Tab (left panel on Blackboard)</td>
<td>Homework/project assignments, solutions</td>
</tr>
<tr>
<td>My Grades</td>
<td>Grade Center on Blackboard</td>
</tr>
</tbody>
</table>

**Communicating Electronically**

*Netiquette Expectations*
Always practice Internet Etiquette when communicating electronically. The purpose of communicating electronically in an online course is to share information.
- Remember that you are communicating with people who do not have the advantage of seeing your body language or hearing your voice inflections, and who may interpret your message differently than you intended.
  - Using all caps may be interpreted as shouting.
Use humor and sarcasm carefully (we can’t see the twinkle in your eye); add emoticons to provide a visual representation of your intent.

Keep your critiques constructive; antagonistic criticism is called “flaming” and may cause an unwanted reaction.

- Remember that you are judged by the quality of your writing.
  - Spelling and grammar do count.
  - Be coherent and succinct.
  - Be professional.

**Sending and Receiving email**

The instructor or TAs will respond to all inquiries, questions, and other electronic correspondence within a timely, but not necessarily immediate, manner. Most electronic communications will be answered within 48 hours. All email messages from the instructor or TAs will be sent to the student’s Clemson University email address. To avoid having your message mistakenly identified as SPAM, please identify the course in the subject line (CE 421-621).

**How to talk about math in emails**

Write your question in Word using MathType or Equation Editor for the mathematical symbols and attach the Word document to your email. Alternatively, you can convert your Word document into a PDF document and send it as an attachment.

**TA information**

Before June 2
Lei Wang
Office Hours: by appointment
(Including June 2) 133 Lowry
Phone: 864-633-8418
E-mail: lwang6@clemson.edu

After June 2
Sara Khoshnevisan
Office Hours: by appointment
135 Lowry
Phone: 864-986-9873
E-mail: khoshnevisan.sara@gmail.com

**Homework Guidelines**

1. If you submit a homework/project paper past due date (**always due midnight EST**), you will lose 50% of the credit automatically. If you do not submit a paper for a given homework/project, you will get zero credit for that homework/project. **No homework will be accepted after the due date of the next homework.** Remember that each homework/project is treated like a quiz.
2. Homework/project paper must be sent through email as an attachment to TA as instructed.
3. Questions regarding the course and material should be sent to the instructor, and questions regarding homework should be sent to TA.
4. Each homework/project paper should begin with a title page, including the following information: date (day/month/year), Homework/project No., student’s name, and number of pages in your paper. You must also number all pages in your paper. You can submit as an attachment a Word document or a PDF document. If your paper is hand-written, you must assure that it is legible, and then scan it into a PDF document. You must submit your work in an electronic form (PDF document preferred), not hard copy.
5. All scanned pages should be submitted as one single document. You must ensure that each page is numbered and legible and oriented correctly. It is the student’s responsibility to ensure that the correct file is being submitted the first time. Multiple homework submission will not be allowed. In fact, only the first submission will be graded.
6. Your submission will be verified with an email reply.
7. Homework will be graded before the due date of the next homework. The grade will be posted in the grade book on Blackboard, and the solution will also be posted on Blackboard.

(This syllabus may be updated prior to the start of the first class. Updated: 4/30/2013, 9:50AM.)