Credits: 3
Prerequisites: Grade of at least C in CSC 340, Senior Standing, and permission of the instructor.
Meeting Times: TR 9:30-10:45am
Location: Sullivan 349

Instructor: Andrew A. Schaefer
Office: Petty 155
Office Hours: TRF 2-3pm
Webpage: http://www.uncg.edu/~aaschaef

Email: aaschaef@uncg.edu Please include CSC490S15 in the subject line of your email, any email without this may be missed.

Catalog Description: Application of classroom knowledge and skills in computer science to solve real-world problems and to develop research and development skills.

Student Learning Outcomes: Upon successful completion of this course, a student should be able to:

1. (Knowledge, Comprehension) identify project/research problems; understand information and grasp meaning; translate knowledge into new context; use information, methods, concepts, and theories of fundamental topics in computer science in new situations;

2. (Application and Evaluation) apply computer science principles and practices to a real-world problem; demonstrate in-depth knowledge in the area of the project they have undertaken; solve problems using required knowledge and skills; implement and test solutions/algorithms;

3. (Analysis) identify potential solutions/algorithms for the project problem; see patterns and modularize the problem, recognize hidden meanings and identify components, show proficiency in software engineering principles;

4. (Synthesis) create new ideas using the old ones; generalize from given facts in the project they undertake, relate knowledge from several areas in systematic scientific approach, predict and draw conclusions relevant to the project they undertake;

5. (Team Work) show evidence (group collaboration, regular meetings, email communications, significant knowledge and skills contributions, etc.) of working productively as an individual and in a team on a project that produces a significant software product;

6. (Communications) show evidence of competency in oral and written communications skills through oral presentations (project presentation, department seminar or conferences), technical reports and/or published research papers in conferences and/or journals; item (Lifelong Learning) use modern techniques, skills and tools necessary for computer science practices relevant to the project they undertake; use techniques in recent research papers to solve problems.

Course Topics: This is a capstone course and, as such, no new topics are covered. Students will develop projects utilizing all major topics covered in previous courses.
**Final Exam:** There will not be a comprehensive Final Exam.

**Attendance Policy:** Students are expected to attend class regularly. It is the student’s responsibility to obtain the information that was presented during a class that was missed. Points may be awarded during class without prior notice, if you are absent you miss the opportunity to earn these points.

**Makeup Policy:** You may not make up exams without prior arrangements, a written medical excuse or a documented emergency. Makeup exams are at the sole discretion of the instructor, if you fail to make up the exam within a reasonable period of time, you will receive a zero.

**Canvas Policy:** You should check Canvas regularly for course announcements. Grades from assignments and exams will be posted to Canvas. It is the student’s responsibility to inform the instructor of missing or misreported grades within one week after they are posted.

**Grading Policy:** The project will be graded for content, correctness, presentation, teamwork, and demonstration of knowledge in the computer science field. Each component will be comprised of three grade areas: WI-writing intensive, SI-speaking intensive, and TC-technical content.

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<tr>
<th>Phases and Reports</th>
<th>WI</th>
<th>SI</th>
<th>TC</th>
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<tbody>
<tr>
<td>Project definition or Requirements Specification (Progress Report 1)</td>
<td>3%</td>
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<td>10%</td>
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<td>System/Algorithm Analysis (Progress Report 2)</td>
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<td>System/Research Design (Progress Report 3)</td>
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<td>Coding and Testing (Progress Report 4)</td>
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<td>Implementation and Conversion (Progress Report 5)</td>
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<td>Evaluation (Progress Report 6) will be divided into:</td>
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<td>-Final Presentation</td>
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<td>2%</td>
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<tr>
<td>-Source Code and User Manual</td>
<td>5%</td>
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<td>7%</td>
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<tr>
<td>-Technical Report/Research Papers</td>
<td>3%</td>
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<td>-Client Evaluation</td>
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<td>-Instructor Evaluation</td>
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**Grading Scale:** Final Grades will be determined based on the following scale:

- **A+** \([97\%, \infty)\)
- **A** \([93\%, 97\%)\)
- **A-** \([90\%, 93\%)\)
- **B+** \([87\%, 90\%)\)
- **B** \([83\%, 87\%)\)
- **B-** \([80\%, 83\%)\)
- **C+** \([77\%, 80\%)\)
- **C** \([73\%, 77\%)\)
- **C-** \([70\%, 73\%)\)
- **D+** \([67\%, 70\%)\)
- **D** \([63\%, 67\%)\)
- **D-** \([60\%, 63\%)\)
- **F** \([0, 60\%)\)

**Speaking and Writing Requirements:** Students are required to write multiple reports and give multiple presentations during the course of the semester. While the instructor will give feedback and assist students in improving the quality of their written and oral communication, students are advised that additional help is available from the following university centers:

- The University Writing Center provides assistance to students in writing tasks from organizing thoughts to the mechanics of effective writing. The Writing Center provides individual consulting for students through either face-to-face or online sessions. For more information, please refer to the Writing Center web site at http://www.uncg.edu/eng/writingcenter/

- The University Speaking Center provides tutoring and services that help students improve their oral communication skills. Consultants at the Speaking Center can provide assistance in the preparation and delivery of speeches, as well as assistance in developing group or team communication skills. For more information, their website is http://speakingcenter.uncg.edu

**Required Texts/Readings/References:** To be determined by student or group of students, with approval of instructor based on the research or project topic. As an example, for a computer system design project the following text books might be used:

2. Red Hat Linux for Dummies, Jon Hall and Paul G. Sery, IDG Books, 2000. (or similar reference)

For a software engineering project the following books might be used:


**ETS Exam:** This course has been designed to satisfy many of the ABET accreditation requirements. Therefore students are required to take the ETS exam to pass this course. ETS exam fees will be paid by the department.
Course Structure: Students are expected to choose an appropriate project/research topic in consultation with their instructor. Students must carry out a requirements elicitation/analysis or literature survey and then identify potential solutions to the problems stated in the project. Students are expected to attend regularly assigned class meetings and individualized conference sessions. Students are also expected to attend their regular group meetings. Students must develop projects that will demonstrate that they have a working knowledge of the basic and advanced concepts in computer science and also demonstrate a reasonable knowledge of recent development in computer science. Each project should include software development that has been approved by the instructor. Students write preliminary reports and present seminars that describe the project background, proposed solutions and plans to implement and test the solutions. The next major phase of the project is to implement and test the solutions to the identified problems. On completion students will produce a technical report and deliver an oral presentation. In case of a group project, every member of the group must present (oral and technical report) the entire project activities pointing out their contribution to make the project successful.

Mandatory Requirement: All projects must have at least two design choices and analyze tradeoffs between these choices. These design choices must be implemented and evaluated by means of subjective or objective methodologies.

Any project that does not satisfy this requirement will receive 0% and the student will fail the course.

Academic Integrity Policy: The UNCG Academic Integrity Policy is available here: http://sa.uncg.edu/handbook/academic-integrity-policy/. Any student who violates this policy will receive a zero for the work and is subject to a reduction of the final grade of this course (up to ”F”). The instructor will report the case to the university.

Electronic Device Policy: Cell phones and other electronic devices should be turned off (or muted) prior to the beginning of class.

Recording Policy: No student may record any classroom activity without express written consent from the instructor. If you have (or think you may have) a disability such that you need to record or tape classroom activities, you should contact the Office of Accessibility Resources & Services http://ods.uncg.edu/ to request an appropriate accommodation.

Classroom Decorum: You should arrive on time; habitual tardiness is disruptive. Eating and drinking is not permitted in class. Disruptive behavior will not be tolerated, you will be asked to leave. A pattern of disruptive behavior may result in your withdrawal from the course.

Withdrawal: A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located on the Academic Calendar. For more information, please visit the Office of the University Registrar.

Disclaimer: This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the instructor reserves the right to modify,
supplement and make changes as needs arise.