Description and Objectives

Prerequisite: Open only to senior computer science majors.

A variety of topics in computer science will be studied in areas ranging from theoretical computer science to social, professional, and ethical issues. Students will be required to make oral and written presentations.

This course has three major purposes. First, review and bring together the knowledge areas of computer science studied throughout the curriculum, adding one or more new areas. This is an opportunity for you to demonstrate what you have learned, and to prepare to take the Field Exam. Second, practice methods of individual investigation and communication, with emphasis on technical reading, writing and presentation. This is an opportunity to hone communication skills. Third, discuss ethical, professional and social issues related to computer technology. This material extends the ethical decision-making framework you learned in the Leadership and Ethics Program to discipline-specific ethical questions.

Major topics include:

- Synopsis review of the material covered in CSCI-201, 202, 223, 305, 320, 355
- Formal languages and automata
- Search and evaluate computer literature
- Technical writing
  - Letter
  - Technical report
  - Literature review
- Social, professional, and ethical issues of computer science
  - Ethical theories
  - Arguments
  - Codes of Conduct
  - Privacy
  - Security
  - Computer Crime
  - Intellectual property
  - Regulating commerce and speech

Course Sections

Section 01

MWF 2:00-3:15, 216 Thompson Hall

Text

Cyberethics: Morality and Law in Cyberspace, Fifth Edition
Richard Spinello
Jones & Bartlett, 2014

Writing and Speaking for Technical Professionals
Martin S. Roden and Teresa E. Murphy
Discovery Press, 2009

Some material on Logic and Rhetoric is provided by Dr. L. Kip Wheeler of Carson-Newman College.

Course Website

http://macs.citadel.edu/rudolphg/csci495

Instructor Information

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Office  225 Thompson Hall
Phone  953-5032
Office Hours  M 9-10am, W 1-2pm, R 3-5pm; by appointment; when my door is open; email is a good way to reach me
Course Requirements

This course involves reading, writing, in-class work and in-class discussions. You are expected to read, absorb and prepare for class on your own outside of class. You are expected to know all assigned material even if it is not discussed in class. In general, late submissions will not be accepted, and there is no extra credit work. Exceptions and substitutions for unit work may be allowed at the instructor's discretion.

**Attendance and Participation**
Attendance is mandatory and expected. You should be punctual. In order to properly pace your way through unit work, there will be something due nearly every class period—one or two unit questions, for example.

**Units, Unit Sheets and Oral Defense**
Below is a list of the 5 major units we will be covering this semester. The pace is approximately 2 ½ weeks (5 class periods) per unit. Time and emphasis will vary depending on the students’ needs and interests.

Each Unit has a corresponding Unit Sheet that lists assignments and point values. Think of each unit sheet as a combination of traditional homework assignments and take-home exam. Unit sheets should be downloaded and printed by each student. The instructor can sign off items that the student has completed on the sheet, providing a backup record of work. Each 5 points on a question represents about 20 minutes worth of work.

**Major Field Test**
The Major Field Test is a national standardized test offered by the Educational Testing Service (ETS). The test is one factor that is used to assess how well our CS program is preparing students in certain keys areas of Computer Science.

**Final Exam**
The final exam is an ethics exam, which will be completed as part of Unit 5 (Ethics).

**Research Paper and Ethics Presentation**
See the Rubrics section for information on the research paper and ethics presentation.
### Tentative Schedule

These dates are tentative, and some topics may change, to better suit the needs and interests of students.

<table>
<thead>
<tr>
<th>Units &amp; Readings</th>
<th>Important Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1: Technical Communication, Logic and Rhetoric</td>
<td>9/2 Labor Day: Class Held</td>
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<td>Unit Sheet</td>
<td>9/11 Unit 1 Due</td>
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<td>Start: Aug 28</td>
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<tr>
<td>Unit 2: Computer Architecture, OS's, Networking</td>
<td>10/2 Unit 2 Due</td>
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<td>and Databases Unit Sheet</td>
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<td>Start: Sep 11</td>
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<td>Unit 3: Programming Languages Unit Sheet</td>
<td>10/4 Parent’s Day</td>
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<tr>
<td>Start: Oct 2</td>
<td>10/16 Unit 3 Due</td>
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<tr>
<td>Unit 4: Algorithm Complexity and Discrete Math</td>
<td>10/23 Leadership Day: No Class</td>
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<tr>
<td>Unit Sheet</td>
<td>11/13 Unit 4 Due</td>
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<tr>
<td>Start: Oct 23</td>
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<tr>
<td>Unit 5: Ethics Unit Sheet</td>
<td>11/20 Take Major Field Test</td>
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<tr>
<td>Start: Nov 13</td>
<td>12/7 Unit 5 Due</td>
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<td></td>
<td>12/9 Ethics Presentations</td>
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<td></td>
<td>12/11 Ethics Presentations</td>
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<td></td>
<td>12/11 Research Paper Due</td>
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<td></td>
<td>12/11 Last Day of Class</td>
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<td>Fall Break</td>
<td>Nov 25 -29</td>
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</tbody>
</table>

| Fall Break                                             | Nov 25 -29                                            |
### Policies and Advice Q & A

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<th>Question</th>
<th>Answer</th>
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| What should I be able to know and do after this course (Student Learning Outcomes)? | Answer questions like those on the Computer Science Major Field Test offered by ETS  
Write documents commonly prepared by computer professionals including cover letters, experiment summaries, and literature reviews  
Prepare and give presentations supported by PowerPoint slides  
Discuss ethical, professional, and social issues related to computer technology  
Apply theories of ethical decision-making to current technology related issues. |
| What is the course policy on technology use in class?                   | Follow the College’s policy on use of cellphones and electronic devices in class. In general, no electronic devices should be seen or heard in class, unless explicitly permitted by the instructor. You may bring a laptop to class, but use should be confined to note-taking or accessing course-related materials. Any other uses will reduce your participation grade. |
| What if I need disability accommodations?                               | If you have a documented disability, please see me at the beginning of the course so we can plan how to help you be successful.       |
| What is the course policy on plagiarism, academic honesty and academic integrity? | Do your own work. You must demonstrate academic integrity when taking exams, writing papers. You **must cite** sources of information or ideas that are not your own. This includes clips from books or the Internet. You cannot turn in a paper someone else has written and claim it is your own work. Plagiarism is an automatic 0 for any exam or assignment, may cause you to fail the course at the instructor’s discretion, and may incur further action by the college. Please know and follow the Honor Code and The Citadel’s Academic Integrity Policy. |
| What if I am feeling overwhelmed by this course?                        | Ask questions in class. Most likely other students have the same questions. Come see the instructor during office hours or drop in.   |
| What other resources might help me succeed in this course?             | Talk to the Science Librarian in the Daniel Library. Visit the Academic Support Center. Both resources can help with any stage of the writing process. |
How do I do...

There are two kinds of rubrics here, common rubrics for assignments that could be used across many courses (such as flash cards), and rubrics that are specific to software engineering work products. General rubrics are taken from the book "Layered Curriculum" by Kathie F. Nunley. The others are my creation but follow in the same spirit. The point is to clarify grading expectations for the student, and to ease grading for the instructor.

Flash Cards
You may either buy index cards or make flash cards from regular white 8.5" x 11" white paper. Fold one sheet of paper in half three times to make 8 squares and cut along the fold lines. Use 2 or 3 pieces of paper, enough for the number of terms. Write the word on one side, and the definition in your own words on the other. Learn them. They are worth 10 points.

Grading: I will choose 10 cards at random and ask you about those words. You get 1 point for each question you get correct.

Bookwork
Book work involves reading a section of a textbook and answering questions at the end of the reading. You may write the answers down, or simply learn them in your head.

Grading: I will ask you 3 questions at random from the reading. You will get 5 points for each question you answer correctly.

Artwork
Artwork involves posters and models. Generally, they are worth 10 points. Be creative. Artistic ability counts in the grade. Note: Mock-up User interfaces, and engineering diagrams are in a different category than artwork.

Grading: I will ask you 5 things you learned about the project. Points are based on artistic value and learning.

Miscellaneous Reading
You may read for 45 minutes on a course-related topic in newspapers, magazines, books, etc. Please tell me beforehand what topic you are reading on. Upon completion, I will ask you to tell me about your reading.

Grading: Your summary is worth 10 points based on enthusiasm and information gained from the reading. You should be able to explain and defend 5 things you learned from the reading.
**Labs**

Labs include any "B" level questions, including what we traditionally think of as labs and any question in which you must design a procedure to solve your problem. Choose one of the following ways to present your results:

1. **Lab report**
   
   A written summary that includes what question you are trying to answer, your hypothesis, details of the procedure you used, what happened and your conclusions.

2. **Lab Display**
   
   Using a piece of paper or a computer model, draw or illustrate what happened in your lab. Make sure the question is on display and that we can see the results and your conclusions.

3. **Lab Verbal Report**
   
   Prepare a 3-5 minute report containing the information as specified for a Lab Report above. Give the report in person, or record it on video and post the video on your website or youtube, or somewhere accessible to me.

**"A" Level Assignments**

Choose an "A" level question. Go to the library (or use a scientific search engine) and find at least 3 recent journal or magazine articles on your topic. Recent means less than 5 years old.

Your write-up has two main parts. First, summarize the main points of each article. Second, write a good 2- or 3-paragraph summary of your opinion on the topic. As a rule of thumb, a good paragraph contains 5-7 sentences, and has a clear main point. Make sure you cite your research when stating your opinion. Get help from a librarian on finding good sources if you need it. Grammar and spelling matter. These assignments are worth 20 points.

**General Comments about Papers, etc.**

When doing "A" level assignments, essays and papers, follow Chicago Manual of Style with numbered references when questions arise that are not specifically answered or understood from your instructions.

**Watching Videos**

Videos are generally worth 15 points for each 45-60 minutes you watch. To get points, you must pay attention and watch during the required minutes. If you are using sites such as Youtube, this may require that you watch a number of videos on a topic. 10 points are given for watching, and up to 5 points for you answering 5 questions I ask about what you've learned.

**Worksheets**

"C" level worksheets are worth 5 points each, and you can do up to three on any unit for which they are available, for 15 points total.

Grading "C" level: I will ask you 3 questions about the worksheet topic. Points are based on your responses to the questions I ask.

"B" level worksheets, when available, have fewer problems than "C" level worksheets, but include more difficult questions requiring problem-solving. These are worth 15 points each.

Grading "B" level worksheets: I will ask you 3-5 questions about the worksheet topic. Points are based on your responses to the questions I ask.
Notes from an Invited Lecture
Give your name, the date, location, title of the talk, and the name of the speaker. Notes should outline the major points of the talk, and include any observations you wish to make. You should provide enough detail that someone who was not there can understand the flow of the presentation and important information. It should be written in outline form. Include a flyer or notice announcing the talk in your submission. These notes are worth 10 pts.
Grading: You get 5 points for writing the notes, and 5 pts for answering 3 questions about the lecture.

Thank You Notes
See your Roden & Murphy text for guidelines. Send either a written or email note to the speaker of the talk you attended, and a copy to your instructor. Thank you notes are worth 10 pts.

Cover Letter
See your Roden & Murphy text for guidelines. The cover letter is about your resume. The cover letter is worth 10 pts.
Grading: You get 5 pts for writing the letter, and 5 pts for answering 2 questions I will ask you about the letter.

Resume
Follow one of the resume formats given in your Roden & Murphy text. Choose the format that best fits your goals. The resume is worth 15 pts.
Grading: I will ask you 3-5 questions about your resume. Points are based on your responses.

Literature Review & Annotated Bibliography
The literature review is preparation for writing your research paper. A literature review is a thorough, scholarly review of material written about a topic with the goal of answering one or more questions. Questions are generally based open research questions or controversial issues. Bibliographies, along with some discussion of sources, are generally considered to represent literature reviews.

For your paper, you will have a main question to be answered and you must make 3 claims relating to that question. You are required to have 4 references relating to each claim, for a total of 12 references. As evidence of your literature review, you will produce an annotated bibliography. Annotate your sources by writing one paragraph summarizing the main points of the paper that are relevant to your research. Please note that your research may support or disprove your claims—that is OK. Help for doing your literature review is available from The Citadel Academic Support Center and any number of websites, if you find you need it. The annotated bibliography is a separate assignment from the paper, but should be handed in at the same time.
Grading: The annotated bibliography is worth 25 pts toward your paper score. 20 pts for writing and 5 pts for answering questions about 3 references chosen by me at random.

Research Paper
The paper should follow the structure described in your Roden & Murphy text for a research paper. Use Chicago Manual of Style with numbered references. The abstract should summarize your main points and results. The introduction should state your main question and the 3 claims you are making, why this is important or interesting, and tell how the paper is organized. The body should present evidence to support or disprove your claims and answer your question. The conclusion should summarize the paper and say something about what next steps could be. It should be easy to see that you took a position, and what that position is. Sentences should be clear, short and
say what you mean. Good grammar and spelling are important. Strive for a formal style without being dry and boring. Length is at least 2750 words, not counting the Bibliography. This is approximately minimum of 5 pages, single-spaced, 12pt font. A more detailed rubric will be given in class. Please remember that the best papers often include pictures, graphs and tables, not just text.

Grading: The writing is worth 70 pts. 5 pts for answering questions about your position.

**Ethics Presentation**

You will do research on a cyberethics-related topic of your choice, and then create a 20-minute presentation on that topic based on the research. This presentation and your research paper do not need to be on the same topic—it is usually better if they are not. Good presentations have a topic clearly stated in the introduction, stay within time constraints, have nice flow, elicit some audience participation, and it is clear the speaker understands the topic (Presentation Content). With PowerPoint slides, the information must be understandable, and amount of information must be just right (Slide Content). The slides should look professional, with smooth transitions (Slide Design). The speaker should have good eye contact, speak clearly, use effective movement and gestures, and use appropriate language (Delivery). A more detailed rubric will be given in class.

Grading: 40 pts for Presentation Content, 30 pts for Delivery, 15 pts for Slide Content, 15 pts for Slide Design.