1. Course Information:
   • CS 442/642 – Cloud Computing
   • Section: 1001
   • Instructor: Nancy LaTourrette
   • Office: SEM 240, 784-4014
   • email: latour@cse.unr.edu
   • Office Hours: Monday noon-3:00 pm; and by appointment
   • Class Hours: TR, 11:00 am - 12:15 pm, SEM 340

2. Catalog Description:
   • Cloud characteristics and security issues. Service, deployment and billing models. Hypervisors and virtualization. Data replication and persistence approaches. Administration and development of clouds. Prerequisite: CPE 400.

3. Objectives:
   • This course is intended to be an upper level undergraduate or introductory graduate course in cloud computing. Students will learn cloud administration techniques and skills by researching, building, and managing a cloud. Skills will be built upon the basic programming and hardware foundations learned in prior computer science and engineering courses and/or acquired outside the classroom. Research and papers are important and will be a significant portion of the course, as is teamwork. In this course you will learn the background, terminology and concepts of cloud computing, and the building, using and managing of public and private clouds.

4. ABET Accreditation Criterion 3 Program Outcomes (CS 442):
   • An ability to apply knowledge of computing, mathematics, science, and engineering.
   • An ability to analyze a problem, and identify, formulate and use the appropriate computing and engineering requirements for obtaining its solution.
   • Recognition of the need for, and an ability to engage in continuing professional development and life-long learning.
   • An ability to use current techniques, skills, and tools necessary for computing and engineering practice.
5. **Course Outline:**
   - The following is tentative and subject to change. The course will have four components: background and concepts of clouds; building a cloud; troubleshooting and managing a cloud; and using a cloud. The conceptual portion of the class will consist of reading, research and papers. This section will be both general and technical in nature, will cover the duration of the semester, and will be conducted on an individual basis. The wholly technical aspect of the course (building, managing, using) will be done in small teams of 2-3 with some individual assignments.

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<tr>
<th>Topic</th>
<th>Lectures</th>
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<tbody>
<tr>
<td>Cloud Concepts</td>
<td>6</td>
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<td>Basic Systems Administration</td>
<td>2</td>
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<td>System Security</td>
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<td>Virtual Machines</td>
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<td>Web Services</td>
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<td>Load Balancing</td>
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<td>Access Control Lists</td>
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<td>Cloud Exercises</td>
<td>4</td>
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<tr>
<td>Private Cloud</td>
<td>6</td>
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<td>Midterm</td>
<td>1</td>
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6. **Text:**
   - There is no required text for this course. Students are expected to do self-directed research online and/or in textbooks for both the theory and technical aspects of the course. Most of the technical assignments will require use of cloud vendor manuals. These manuals can be found online.

7. **Course Policies:**
   - Collaboration is not only allowed but also encouraged. **However,** each student is responsible for all the skills and knowledge acquired by their team. In your write-up credit the people with whom you worked.
   - All papers must be properly annotated.
   - Make-ups for quizzes or exams and the grade of incomplete will not be granted except for medical reasons.
   - You should carefully read the section on Academic Dishonesty found in the UNR Student Handbook (copies of this section are on-line). Your continued enrollment in this course implies that you have read
it, and that you subscribe to the principles stated therein.
• In addition to the stated University standards, any assignment found to have more in common with another source (e.g., work of other students, online or published material, etc.) than is determined to be reasonable or acceptable by the course Instructor will be considered to be academic dishonesty.
• Per the University policy, the definition of academic dishonesty also applies to person(s) who provided the material(s) in question.
• When a student has demonstrated academic dishonesty, the policy of the Computer Science and Engineering Department is to apply the following minimum academic penalty of: 1) failure of the assignment with assigned grade of zero, and 2) a formal letter specifying the academic integrity breach and the associated sanction forwarded to the Office of Student Conduct to be placed in the student's permanent file.
• Depending on the egregiousness of the activity and for repeat offenders, sanctions beyond these minimums may be imposed at the discretion of the Instructor.

8. Assessment and Grading Scheme:
• There will be a Midterm Exam and a Term Paper.
• The final grade will be based on:

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<tr>
<th>CS 442/642</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Term Paper</td>
<td>25%</td>
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<td>Technical Assignments</td>
<td>40%</td>
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<td>Class &amp; Team Participation</td>
<td>10%</td>
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<tr>
<td>Midterm Exam</td>
<td>25%</td>
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• Course Grades: 90% and above = A; 80-89% = B; 70-79% = C; 60-69% = D; 59% and below = F. Note: Plus or minus may be assigned based on an outstanding or inferior term paper. All assignments, papers and exams are mandatory – a non-passing grade on any of these components means a non-passing grade for the course.
• The work load and evaluations for CS 642 students will be different and more demanding:
  o Exams will have an additional problem(s) for graduate students that will test a broader range of course material. Examples: subject matter mentioned in lecture but not covered in depth.
  o All answers on exams should demonstrate a deeper understanding of course material.
Each graduate student will have additional responsibilities including helping with teams, solutions, extra research questions, etc.

Term Papers will include greater depth in research and material covered.

9. Disability Statement:
   • If you have a disability for which you will need to request accommodations, please contact either your instructor or the Disability Resource Center (Thompson Building - Suite 101), as soon as possible.

10. Videotaping & Recording:
    • Surreptitious or covert videotaping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class might be recorded.

11. Important Dates:
    • Midterm Exam -- TBA
    • Final Meeting – Thursday May 5th, 8:00-10:00 am