



University of Nevada, Reno

# CS 105: Introduction to Computing

## Spring 2019

Version 3.1, Last Modified: 01/13/2019

### Instructor: Qiping Yan, PhD

- E-mail: Use WebCampus Email
- Office: SEM 323B
- Office hours: Friday, 1:00 pm – 4:00 pm  
(or by appointment)
- Class webpage: WebCampus

### Teaching Assistants:

- Names
  - Aniruddha Prithul
  - Abdullah Al-Mamun
- TA Access:
  - E-mail: Use WebCampus Email
  - Office: LME 321
  - Office hours: By Appointment, as needed

### Lectures:

- Monday & Wednesday, 12:00 - 12:50 pm, SLH 2

### Labs:

- Laboratories will begin on Tuesday, 29th January
  - Section 1101: Tuesday, 2:30-4:30 pm, LME 321
  - Section 1102: Wednesday, 2:30-4:30 pm, LME 321

### Important Notes and Dates:

- **Final Exam:** Friday May 10 2019, 12:10 – 2:10 pm, SLH 2
- **Holidays (affecting this class or laboratory):**
  - Monday, 18 February, President's Day
    - No class on this day
  - 16-24 March, Spring Break
    - No class, no lab
  - Wednesday, 8 May, Prep Day
    - No class, no lab on this WEEK

**Required Textbooks:**

- None.

**Supplemental Books:**

- None. Individual references will be provided during classes.

**Course Description:**

- **Catalog:**
  - Introduction to essential concepts and practices in computing. Design, assemble, and operate basic computer hardware and software in a collaborative environment.

**Prerequisites:**

- None

**Outcomes and Objectives:**

- CSE Student Learning Outcomes (SLOs). The CSE student learning outcomes are skills and abilities students should have acquired by the end of the course. These outcomes are defined in terms of the ABET Accreditation Criterion 3 Program Outcomes which are relevant to this course. The outcomes specifically satisfied by this course are:
  - 4. an ability to function effectively on multi-disciplinary teams.
  - 6. an understanding of professional, ethical, legal, security and social issues and responsibilities.
  - 7. an ability to communicate effectively with a range of audiences.
  - 8. the broad education necessary to analyze the local and global impact of computing and engineering solutions on individuals, organizations, and society.
  - 10. a knowledge of contemporary issues.
  - 11. an ability to use current techniques, skills, and tools necessary for computing and engineering practice.

**Assessment:**

- The following table shows the student learning outcomes used for this course and how they are assessed. As a requirement of ABET accreditation, all of the following student learning outcomes are regularly assessed using the direct assessment methods and metrics provided in the table below.

<b>CSE SLOs</b>	<b>Course Specific SLOs</b>	<b>Assessment Methods/Metrics</b>
4	Students will be able to interact and work with a variety of other students in the course of class activities and laboratories critically examining a variety of issues at the local, national, and global levels	Reflection papers and laboratory report readings related to problems and solutions at various levels will be developed, conducted by students working in small groups of constantly varying membership
6	Students will be able to identify ethical conflicts involving real-world engineering, science, and technology conditions; students will recognize and be able to argue for or against the potentially multiple positions offered by a given ethical circumstance	Reading of technical reports, responding to reflection questions posed for each circumstance, actively responding to class discussion related to a given issue assignments and interactions
7	Students will be able to demonstrate effective written communication in response to questions related to knowledge, application, history, and global impact of Computer Science and Engineering processes	Written response and reaction papers to several different course topics; discussion and interactive communication on some topics
8	Students will be able to analyze and discuss the history, the present circumstance(s), and the predicted future impacts of computers and technology on individuals, institutions, and society at the local, regional, and national level	Written reaction papers and class discussion in response to class and written presentations related to historical, current, and potential future impacts of computers and technology, multiple choice questions on quizzes and final examination
10	Students will be able to identify, analyze, and interpret contemporary issues related to the impact of Computer Science and Engineering at the local, regional, and global levels	Report and current event readings, written analysis and evaluation of specified circumstances and class discussion assignments and interactions, multiple choice questions on quizzes

11	Students will be able to conduct active hands-on interaction with hardware and software related to CSE; students will solve a variety of problems using various electronic and engineering tools	Conduct laboratory activities, and provide paper, web-oriented, and computer displayed results
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### Course Topics:

- The Computing Machine
- Making the Computer Work
- History of Computers and Technology
- Creating Computer Programs
- Communicating between Systems
- Interacting with Computers
  - (Hardware & Software interfaces)
- How Computers Think
- Computers as Entities
- CS&E Career and Life

### Course Schedule:

- While there is always variability in the course schedule, the following is the general plan and description of the course components.
  - Introduction, modularity and abstraction, study of incoming engineering students, program conventions from local to global (~1 week, SLO 7, 8, 10)
  - Numbering systems and patterns, encryption, decryption, history and global context (~2 weeks, SLO 11)
  - Low-level and high-level computer interaction, syntax and semantics of programming and other languages locally, regionally, and internationally (~1 week, SLO 11)
  - Networking, Internet, email, global impact of Internet, from the best to the worst (~1 week, SLO 4, 6, 8, 10)
  - Computer Engineering, sound synthesis, study of analog and digital (~1 week, SLO 11)
  - Impact of failed computing machinery and/or controls (~1 week, SLO 6)
  - Impact of global competition, education, and enterprise; impact of local and global ethics and safety as pertains to computer/computing devices (~1 week, SLO 7, 8, 10)
  - Operating systems, human and computer decision-making (~1 week, SLO 11)
  - Algorithms, heuristics, strategies, and tactics (~1 week, SLO 11)
  - Contemporary and personal issues affecting Computer Science students and professionals at the local, regional, and national levels (~1 week, SLO 10)
  - Robotics, use of robots, history, ethics, and global impact (~1 week, SLO 6, 8)
  - ~ Thirteen Weekly Laboratories (SLO 4, 11)
  - Most classes involve small student group work and interactions (SLO 4)

- Most in-class or homework assignments involve reflective or responsive writing (SLO 7)
- Notebook (final project) incorporates researching, analyzing, and writing about contemporary issues and impacts of computer/technology at the local, regional, and global levels (SLO 8, 10)

### **Course Policies:**

- Attendance. Students are expected to attend, and be on time, for every class. This demonstrates professionalism and consideration for your fellow students and your Instructor. While the course does not have an attendance policy, students who miss class and/or are late for class may experience an impact on their grade by missing classroom activities or homework submission opportunities
- Home and Class Work. Students are responsible for implementing all assigned activities, and for turning in all assigned materials as specified in the assignments. With very few, if any exceptions\*, homework, class work, quizzes, and/or any other graded activities may not be made up, or turned in after their due date. \*See Athletics and Illness topics below
- Electronic Devices - Noise. Students are expected to demonstrate professionalism and courtesy by either silencing or turning off all cell phones and/or other alarm or audible indicator devices. If any device causes a disturbance in the class, the student owned by this device may be asked to leave the class
- Electronic Devices - Distractions. Students are expected to demonstrate professionalism and courtesy by coming to class prepared to be engaged and involved with the class activities, whatever they may be. Students using electronic devices such as cell phones, net books, laptops, etc., must be using them exclusively for classroom involvement. If it is observed that students are using any of these devices for reasons other than classroom involvement, a two-tiered response will be set in motion: 1) all students who use devices will be required to sit in the front one or two rows of the classroom; or, if this does not curtail the inappropriate behavior, 2) all electronic devices will be banned from the classroom. ***Note: If you appreciate the opportunity to use your electronic device(s) in the classroom and you notice someone else abusing the privilege, you may save yourself some difficulty by advising the individual to change his or her behavior***
- Student Engagement. There will be a great deal of interaction and class/group activity in this course. For that reason, students are expected to be engaged in, and focused on, the classroom discussion and/or activities. In addition, everyone involved with this class is expected to act in a professional manner, and interact with her or his peers with that same professional demeanor

- **Classwork Paper.** As a result of many of the classroom activities, you are likely to be turning in some of your activities on paper. Unless otherwise specified, the paper should be 8½ x 11 inch (or close to this measurement), and it may not have shredded edges such as occurs when paper is torn from a spiral notebook. Since shredded edges and smaller sized paper are difficult to manage, and may easily be lost, your quiz, activity, or other response may not be accepted if your paper does not meet these specifications.
- **WebCampus.** It is expected that you have access to WebCampus on the first day of class. In addition, you are expected to check on WebCampus for news or updates, your grades, emails, announcements, and so on every week day. It is a really good idea to check it once or twice on weekends as well.
- **Course/Policy Modification.** The Instructor reserves the right to add to, and/or modify any of the above policies as needed to maintain an appropriate and effective educational atmosphere in the classroom and the laboratory. In the case that this occurs, all students will be notified in advance of implementation of the new and/or modified policy

#### **UNR Athletics:**

- If you are involved with any *university-sponsored* athletic activities that will have an impact on your attendance, you must provide your Instructor with a letter from your coach and/or the UNR Athletic Department as soon as possible, but no later than the end of the second week of classes. This should include the official schedule of your activities which will impact your attendance throughout the semester. You must also advise the Instructor one week in advance of any absences related to the athletic activities.

#### **Illness:**

- If you are sick or have a health-related reason for not attending class, it will be very helpful to the Instructor and TAs if you let us know as soon as you are aware of the problem. You can do this via WebCampus email or by calling the Instructor. Most activities in both the class and the lab require special set up conditions, so it can be difficult to conduct make-up operations. However, if you contact the Instructor in a timely manner (i.e., prior to the class or the laboratory), we may be able to adapt to the circumstances

#### **Assignments, Examinations and Grading:**

- **Homework Assignments:**
  - There will be a number of homework assignments. These consist of a variety of usually written responses or reactions to reading, research, or other course interaction with Computer Science conditions. There are assignments almost every week in this course, but in some cases they may not be announced during class. You are responsible to check WebCampus at least once a day and at least once or twice over the weekend to check for these assignments. All homework assignments must be

printed with at least 12 point Times New Roman font or equivalent; homework that is difficult to read and/or hand written will likely not be graded

- **Classwork Activities and Assignments:**

- There will also be a number of classwork assignments. These may include individual and/or group writing or analysis activities, or other written or developed products. If you are not in class and miss these activities, you will not be able to get credit for them

- **Quizzes:**

- There will be at least two Words of the Days quizzes

- **Exams:**

- There will not be any examinations other than the final examination

- **Late Submission Policy:**

- Generally speaking, most materials will not be accepted if they are late. However, if the Instructor is advised ahead of time that a student will miss class or an activity for a legitimate and verifiable reason, this policy may be waived. You are responsible to conduct and turn in all assignments made in class and on WebCampus, but if you have a question on this, ask the Instructor

- **Grading Structure:**

- The final grade will be based on (Tentative, subject to change):

Course Activities	Weight
*Weekly Activities (assignments, in-class exercises, quizzes, etc.)	40%
*Laboratory Activities	30%
*CSE Notebook	20%
*Final Examination and Related Activities	10%

\*to be assured of a 'C' or better in the class, a 70% or better grade is required for each of these

- Each graded item will be scored on a simple rubric, scores will be added and normalized to a percentage, and then multiplied by the appropriate weight specified above. Letter grades are earned as follows: A: 90% and above, B: 80% and above, C: 70% and above, D: 60% and above, F: below 60%. A plus/minus (+/-) grade will only be assigned when it accurately represents a grade very near a cutoff point, and there is no automatic rounding (in either direction).

- Note that the final calculated grade is used as a consideration, but not necessarily the absolute standard, when grading is finalized; all four course components are considered prior to awarding the final letter grade. A C- grade or below may be earned by students who do not achieve the minimum 70% in the course components specified in the table above
- The CSE Notebook, specified below, will be presented for review three times during the course
- You will be provided your ongoing grade on WebCampus which, barring unusual circumstances, will never be more than 5 weekdays behind. Check this regularly for errors and/or omissions. If we make a mistake, we will be glad to fix it as long as we can verify the problem. Grades posted and not challenged for three weeks after a graded activity date will be considered correct, and are unlikely to be subject to modification.
- **CSE Notebook or Website:**
  - There are several kinds of semester projects that can be assigned, but many of the goals for this course include learning about courses, research, people, and activities related to CSE. The goal for this semester project is for you to take something with you from this class that you can use at least for your career as a student here at UNR. Since many of you are just getting started on your University career, you can create this notebook or website and organize and keep information that will be important for you to access in the next few years. You are only required to keep it long enough to finish the course; however, if you do a good job with it, you will get a good grade AND have a good reference for the future
  - For the notebook requirement, you must do one of two things:
    - purchase a notebook (at least 1", hard-cover, 3-hole binder), with a set of at least 8 divider tabs
    - create a website solely dedicated to your CS 105 Notebook requirement
  - Create dividers in your notebook or on your website as follows:
    - a. Outside and inside front covers of the notebook or default page of your website **must** show your name and section
    - b. Advising Paperwork
    - c. Careers
    - d. Courses
    - e. People
    - f. Research & News
    - g. Journal, Personal Notes & Cool Stuff



- h. Syllabus & Class Notes
- i. Returned Assignments

- Note: For all the above items, if you choose to create a website, all required papers or artifacts must be scanned and uploaded to your website
- Note that one of the requirements of the notebook is that you print out and read an article that relates to your future in some way (e.g., technical, social, legal, financial, etc.) and write a paragraph describing why you think it will affect you, how you think it will affect you, and how you can prepare yourself for the occurrence of the specified issue. This is a very short weekly assignment but if you put it off you will have to spend time catching up before you turn in your notebook
- The CSE Notebook or website will be graded at least twice during the semester and just before the final examination. The grading will be conducted as follows:
  - course components that have already happened will be selected in advance of the grading process; you will receive credit for each item *easily* and *readily* found in your notebook that reflects information on the specified course components
  - Any additional items found in the CSE Notebook that demonstrate student activity beyond the requirements may be considered for additional credit
- Notebook Due Dates:
  - Tuesday, 26 February
  - Tuesday, 2 April
  - Tuesday, 30 April

### **Academic Integrity:**

- All rights and regulations concerning academic honesty and plagiarism, as they appear in the current University catalog, will be upheld in this course. Please review the definition of academic integrity on the [University Web Page](#). In addition to the stated University standards, any student-generated artifact found to have more in common with any other source (e.g., one or more fellow students, any online reference, etc.) than is considered reasonable or acceptable by the course Instructor will be considered to be academic dishonesty. Note that, like the University policy, this definition includes the person who provided the material(s) in question. Per Computer Science and Engineering Department policy, any student who has demonstrated academic dishonesty in this course will receive a minimum academic penalty of: 1) failure of the assignment (i.e., assigned grade will be zero), and 2) a letter indicating the academic integrity breach and the associated sanction will be forwarded to the Office of Student Conduct to be placed in the student's permanent file. Depending on the egregiousness of the activity and the discretion of the Instructor, sanctions beyond these minimums may also be applied.

- **Disability Statement:**

- If you have a disability for which you will need to request accommodations, please contact the Instructor or someone at the Disability Resource Center (Thompson Building, Suite 101), as soon as possible to arrange for appropriate accommodations.

- **Academic Success Services:**

- Your student fees cover usage of the Math Center (784-4433 or [www.unr.edu/mathcenter/](http://www.unr.edu/mathcenter/)), tutoring Center (784-6801 or [www.unr.edu/tutoring/](http://www.unr.edu/tutoring/)), (784-6801 or [www.unr.edu/tutoring/](http://www.unr.edu/tutoring/)), and University Writing Center (784-6030 or [www.unr.edu/writing\\_center](http://www.unr.edu/writing_center)). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student
- The University Math Center (UMC) is focused on helping students with mathematical and statistical concepts. While mathematics is used extensively in engineering, the UMC does not have the resources to help students with engineering courses. Engineering students are encouraged to use the UMC for help in their math classes, and they are welcome to use its computer lab and study area any time –regardless of course. However, UMC tutors cannot answer questions regarding engineering courses.

- **Video or Audio Recording of Lectures or Course Activities:**

- Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy
- This class or any parts of it may be recorded to video or audio media 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 may be recorded.

- **Campus Safety (from the Campus Police Department):**

- Make personal safety your number one priority. Awareness, Avoidance and Risk Reduction is the best way to not be a victim.
- Travel in groups of two or more and always travel in well-lit, heavily traveled areas.
- Tell someone where you are going and when you will return.
- Carry a whistle or noise maker. This can serve as a reminder to exercise caution, and can alert someone in the area that you need help.

- Be alert! Look around you; be aware of who is on the street and in the area. Make it difficult for anyone to take you by surprise.
- If listening to music, keep the volume low so you can hear what is going on around you.
- If you know you are going to be working late, plan ahead as to how you will get to your vehicle or home safely.
- Use Campus Escort or University Police Cadets to get you to your vehicle safely. Campus Escort operates 7 days a week during academic semesters from 7:00 P.M. – 1:00 A.M and can be contacted at 742-6808. Police Services Cadets operate Monday through Wednesday from 6:00 P.M. – 12:00 A.M. during academic semesters. Student cadets can be contacted at 745-5921 or 745-7505. When these services are not operating, contact the duty officer through regional dispatch at 334-COPS (2677) and request an escort.

- **Epilogue:**

- Two of the goals of this course are for you to learn about Computer Science and Engineering, and to enjoy what you are doing. Obviously, you must show up in body and spirit to achieve these goals.
- One of the goals is to help you find your place in the culture and society of Computer Scientists and Engineers. To accommodate this goal, the Instructor will be actively placing you in situations where you can meet and work with a variety of your fellow students. Any worthwhile endeavor requires people to work together toward common goals, and in Computer Science and Engineering, it has never been (and never will be) possible to be successful working alone. You may come up with the next great sorting algorithm or the breakthrough microprocessor, but it will never matter if you have not learned to communicate and work with others. Besides, working with others and meeting new people is much more fun.
- The course involves a very broad spectrum of the various things you can do with CSE here at UNR as well as outside the University walls. While we will not be exploring any one part of CSE in great detail, you will always have the opportunity to do so yourself. The primary role of the Instructor and Teaching Assistant(s) is to show you what is interesting and exciting about CSE and to help you to get some ideas as to the things in CSE that interest you the most. However, if you find topics or areas of interest in CSE that you wish to pursue in greater depth, please ask her or him about it. There are an uncountable number of resources in the CSE Department, and all of them are dedicated to you and your future; we will help you find what you need.