Course Syllabus

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CS 333: Testing and DevOps

Spring 2024

Course Information

Instructor Information:

Instructor	Email	Office Hours	Location
Erin Keith	ekeith@unr.edu (mailto:ekeith@unr.edu) or WebCampus	Wednesday 4pm - 5:30pm Thursday 1:30pm - 3pm	WPEB 433

TA Information:

TA	Email	Office Hours	Location
Ehsan Saeedizade	WebCampus	Friday 2pm - 4:30pm	WPEB 408

Course Description:

Introduction to software testing methods and infrastructure as code.

Course Pre/Co-requisites:

CS 202, with a “C” or better

Texts/Course Materials:

Required

Technology

WebCampus, Python, Git

Advised

Technology

Discord

This course may leverage 3rd party web/multimedia content, if you experience any issues accessing this content, please notify your instructor.

Class Procedures/Structures:

Students will be required to access materials and complete activities and assignments online via WebCampus and GitHub Classroom.

Students will be required to attend all class meetings. These meeting will be scheduled from 4:30-7:15 p.m. on Tuesdays for the duration of the course.

Course Arrangement:

I am using the flipped classroom principle which means you are expected to read the relevant material before each class. There will be some lecturing but well mostly get our hands dirty programming or discussing technologies. We will be using the paired programming approach so you will partner with another student when doing the exercise. Don't let your partner down so please read each chapter before class.

As per the University Administrative Manual (3,020), students are expected to attend classes in which they are enrolled.

Student Learning Outcomes:

Student Outcome 1: an ability to apply knowledge of computing, mathematics, science, and engineering

Students demonstrate the underlying theory of testing.

Student Outcome 5: an ability to analyze a problem, and identify, formulate and use the appropriate computing and engineering requirements for obtaining its solution.

Students understand the context in which infrastructure as code will be used.

Student outcome 12: an ability to apply mathematical foundations, algorithmic principles, and computer science and engineering theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices

Students understand which testing and devops approaches should be applied to different problems.

Student outcome 13: an ability to apply design and development principles in the construction of software systems or computer systems of varying complexity

Students understand how the application of a testing affects the system quality of a system and what tradeoffs are involved in the application of different testing methods.

Course Requirements:

Tests

There will be one midterm and a final

Homework Assignments

Homework assignments are programming assignments that week need to be submitted before the class starts (use git to submit your homework). Push all your *.py files to the appropriate git repository. There will be four homework assignments and a final project.

Classroom Assignments

There will be pair programming assignments in class. These will also be submitted using git. There will be formal and informal class discussions. You must attend to get full credit.

Grading Criteria, Scale, and Standards:

Grading (Tentative)

Both grading policy and scale are subject to change.

Grading Policy

30 - Class Activities

30 - Homeworks

20 - Midterm Exam

20 - Final Exam

Grading Scale (Tentative)

A: 90% - 100%

B: 80% - 89%

C: 70% - 79%

D: 60% - 69%

F: <60%

Late Work or Make-up Exams Policies:

While it is your responsibility to be aware of the exact due dates posted on WebCampus, the following are the general policies for each Grading Category:

Homeworks

Late homework assignments will generally be accepted for 3 days after the assignment is due, with a 10% per day penalty, unless stated otherwise.

Class Activities

Unless otherwise stated, in class assignments are expected to completed in pairs. **If you cannot make it to class, please email me ASAP to make arrangements.**

While there is no late policy for in-class assignments, the lowest grade in this category will be dropped.

Midterm and Final Exams

If you are aware of a conflict with the exam times, let me know as soon as possible so arrangements can be made.

Course Calendar or Topics Outline:

Topics (Tentative)

Introduction to Python and Git

The Software Testing Cycle

Unit Tests

Integration Tests

Test Driven Development

DevOps

Source Control Management

Continuous Integration

Environment Virtualization

Configuration Management

This is a tentative list of topics, subject to modification and reorganization.

Course Policies:

Communication Policy

Discord link: https://discord.gg/CaCyTddZQk (https://discord.gg/CaCyTddZQk) . **Do not DM staff outside of standard operating hours. Do change your nickname on Discord to the full name you'd like us to use in this class.**

- Grading questions: email your Lab TA

    - CC me with a follow up email if you do not receive a response within one business day.
- Debugging questions: attend a staff member's office hours
    - Arrive prepared to describe your issue and approaches you've tried to resolve it.
- Our goal is to provide feedback and grades within 1 week of the last due date
- For emails, please include **CS 333** in the subject line!

Plagiarism

Unless otherwise specified, all tasks are individual efforts. A severe penalty will be given for collusion or other form of academic dishonesty. The usual penalty for academic dishonesty on assignments or an exam is failure in the course.

I will be using an automated tool on programming assignments and tests to detect plagiarism.

Netiquette

The following guidelines should be followed each time you interact in the course to ensure your interactions are respectful and professional:

1. In all your interactions, remember that there is a person behind the written post, who has feelings and can be hurt by what and how you interact with him or her.
2. It is easier to say something online when you do not have to look the person in the eye, so never post anything that you would not say to the person face-to-face.
3. Adhere to the same standards of behavior online that you follow in real life, which includes acting ethically and following rules and regulations. If you would not steal in real life, then you should not steal online by taking other people’s ideas and using them as your own.
4. Respect other people’s time and bandwidth:
5. a) Take time to understand the requirements of the discussion.
6. b) Do not waste people’s time by asking questions that are not relevant to the discussion or questions whose answers can be readily be found in the course with a little effort.
7. c) Refrain from disagreements that lead to personal attacks.
8. Make yourself look good online:
9. a) Take time to check your spelling and grammar.
10. b) Prepare for discussions prior to engaging in them.
11. c) Refrain from inappropriate language and remarks.
12. Share your knowledge by offering help to learners who have questions.
13. Help keep flame wars under control by not posting flames and not responding to flames – keep discussions professional.
14. Forgive other learners’ mistakes and be patient and compassionate of all learners in the course.

SafeZone and Inclusion Statement

I am a member of a Safe Zone Ally community network, and I am available to listen and support you in a safe and confidential manner. As a Safe Zone Ally, I can help you connect with resources on campus to address

problems you may face that interfere with your academic and social success on campus as it relates to issues surrounding sexual orientation and gender identity. My goal is to help you be successful and to maintain a safe and equitable campus.

This class is a place where you will be treated with respect, and as such the expectation is that you will treat others with respect. We welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability -- and other visible and nonvisible differences. Academic backgrounds of all types will be respected. All members of this class are expected to actively work to sustain a welcoming and inclusive culture for every student in the class (and staff).

I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference whenever you are comfortable.

University Policies

Statement on Academic Dishonesty:

The University Academic Standards Policy defines academic dishonesty, and mandates specific sanctions for violations. See the University Academic Standards policy: **UAM 6,502. (https://www.unr.edu/administrative-manual/6000-6999-curricula-teaching-research/instruction-research-procedures/6502-academic-standards)**

Statement of Disability Services:

Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the **Disability Resource Center (http://www.unr.edu/drc)** (Pennington Achievement Center Suite 230) as soon as possible to arrange for appropriate accommodations.

Statement on Audio and Video Recording:

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 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 may be recorded.

Statement on Maintaining a Safe Learning and Work Environment:

The University of Nevada, Reno is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, or stalking, whether on or off campus, or need information related to immigration concerns, please contact the University's Equal Opportunity & Title IX office at 775-784-1547. Resources and interim measures are available to assist you. For more information, please visit the **Equal Opportunity and Title IX (https://www.unr.edu/equal-opportunity-title-ix)** page.

Statement on Campus Closures or Delays:

In the event of class cancelations or delays caused by inclement weather conditions, fire/smoke conditions, or other unforeseen emergencies, the safety and well-being of students are the University's top priority. Official notifications will be disseminated through the University website and other official channels with details related to any campus delays or closures.

In the event of a campus closure, you will be informed as to whether the class will be offered remotely or if it will be canceled. If the class is cancelled, you will receive information on how to address any missed course content.

Students facing significant impacts due to these events are encouraged to communicate with their instructor for potential accommodations.

Statement for Academic Success Services:

Your student fees cover usage of the **Math Center (http://www.unr.edu/mathcenter/)** (775) 784-4433, **Tutoring Center (https://www.unr.edu/tutoring-center)** (775) 784-6801, and **University Writing Center (https://www.unr.edu/writing-center)** (775) 784-6030. 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.

Statement on Student Compliance with University Policies:

In accordance with section 6,502 of the University Administrative Manual, a student may receive academic and disciplinary sanctions for failure to comply with policy, including this syllabus, for failure to comply with the directions of a University Official, for disruptive behavior in the classroom, or any other prohibited action. "Disruptive behavior" is defined in part as behavior, including but not limited to failure to follow course, laboratory or safety rules, or endangering the health of others. A student may be dropped from class at any time for misconduct or disruptive behavior in the classroom upon recommendation of the instructor and with approval of the college dean. A student may also receive disciplinary sanctions through the Office of Student Conduct for misconduct or disruptive behavior, including endangering the health of others, in the classroom. The student shall not receive a refund for course fees or tuition.

Material subject to change.

Course Summary:

Date	Details	Due
Mon Jan 22, 2024	Git	to do: 11:59pm
	Python	to do: 11:59pm

Date	Details	Due
	Using the Autograder	to do: 11:59pm
Tue Jan 23, 2024	Activity 1 (https://webcampus.unr.edu/courses/109089/assignments/1393846)	due by 7:15pm
Mon Jan 29, 2024	Unit Tests	to do: 11:59pm
Tue Jan 30, 2024	Activity 2 (https://webcampus.unr.edu/courses/109089/assignments/1393848)	due by 7:15pm
Mon Feb 5, 2024	Integration Tests	to do: 11:59pm
Tue Feb 6, 2024	Activity 3 (https://webcampus.unr.edu/courses/109089/assignments/1393849)	due by 7:15pm
Mon Feb 12, 2024	More Integration Testing	to do: 11:59pm
	Homework 1 (https://webcampus.unr.edu/courses/109089/assignments/1393859)	due by 11:59pm
Tue Feb 13, 2024	Activity 4 (https://webcampus.unr.edu/courses/109089/assignments/1393850)	due by 7:15pm
Mon Feb 19, 2024	Test Driven Development	to do: 11:59pm
Tue Feb 20, 2024	Activity 5 (https://webcampus.unr.edu/courses/109089/assignments/1393851)	due by 7:15pm
Mon Feb 26, 2024	Homework 2 (https://webcampus.unr.edu/courses/109089/assignments/1393860)	due by 11:59pm
Tue Mar 5, 2024	Activity 6 (https://webcampus.unr.edu/courses/109089/assignments/1393852)	due by 11:59pm
Tue Mar 12, 2024	Midterm (https://webcampus.unr.edu/courses/109089/assignments/1393861)	due by 4:45pm
Mon Mar 18, 2024	DevOps	to do: 11:59pm
Tue Mar 19, 2024	Activity 7 (https://webcampus.unr.edu/courses/109089/assignments/1393853)	due by 7:15pm

Date	Details	Due
Mon Mar 25, 2024	Continuous Integration	to do: 11:59pm
Mon Apr 1, 2024	Docker	to do: 11:59pm
Tue Apr 2, 2024	Activity 8 (https://webcampus.unr.edu/courses/109089/assignments/1393854)	due by 7:15pm
	Final Project Design (https://webcampus.unr.edu/courses/109089/assignments/1393858)	due by 11:59pm
Mon Apr 8, 2024	Configuration Management	to do: 11:59pm
Tue Apr 9, 2024	Activity 9 (https://webcampus.unr.edu/courses/109089/assignments/1393855)	due by 7:15pm
Mon Apr 15, 2024	Cloud Computing	to do: 11:59pm
Tue Apr 16, 2024	Activity 10 (https://webcampus.unr.edu/courses/109089/assignments/1393847)	due by 7:15pm
Mon Apr 22, 2024	Final Project Rubric	to do: 11:59pm
Tue Apr 23, 2024	Activity 11 (https://webcampus.unr.edu/courses/109089/assignments/1394289)	due by 7:15pm
Mon Apr 29, 2024	Final Project (https://webcampus.unr.edu/courses/109089/assignments/1393857)	due by 11:59pm
Tue Apr 30, 2024	Final Project Demo (https://webcampus.unr.edu/courses/109089/assignments/1394311)	due by 11:59pm
Tue May 14, 2024	Final (https://webcampus.unr.edu/courses/109089/assignments/1393856)	due by 3pm