44-599-03: Foundations of Game Programming

Contact Information

Dr. Michael P. Rogers
Office: 2270 Colden Hall
Office Hours: MW 2:30-4:30 PM; Th 1PM-3PM; F 3-4 PM
Virtual Office Hours: Anytime you see me online
Phone: 309-825-6454 (Cell/Home/Text); 660-562-1551 (Work)
E-mail: mprogers@mac.com; Michael@nwmissouri.edu
Social Media: @mprogers (Twitter); mprogers@mac.com (Facebook)
Web Site: http://cs.mprogers.org/course/view.php?id=40

Description

This course will blend theory and practice to provide students with a solid understanding of the foundations of game programming.

Prerequisites

Knowledge of object-oriented programming and an interest in exploring new technologies

Instructional Objectives

After successfully completing this course, students will

1. understand the fundamental architecture of computer-based games in a platform-agnostic way
2. be able to design and develop games using a popular game development package
3. have had the opportunity to participate in multiple presentations
4. have more experience working in teams
5. be better at problem solving and coding

Instructor Responsibilities

Your instructor will help you attain those objectives by:

1. explaining the material in as clear a manner as possible
2. guiding your reading
3. maintaining numerous office hours, both during the day and (virtually) during the evening
4. monitoring your progress via periodic assignments, quizzes and exams
5. soliciting feedback
Resources

3. Kenney Game & App Studio
4. unity3d.com
5. stackoverflow.com -- when all else fails!
6. TBA

Expectations

1. Attend all classes
2. Ask questions during class. If you are confused, chances are your neighbors are too, and will appreciate your inquiry.
3. Explore and experiment! Try new things and learn from both your successes and failures. Computer Science is a science.
4. Keep up with the readings.
5. Do group assignments in groups; do individual assignments individually.

Assessments

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (≈15)</td>
<td>30</td>
</tr>
<tr>
<td>Assignments (10-15)</td>
<td>20</td>
</tr>
<tr>
<td>Midterm Group Project</td>
<td>22.5</td>
</tr>
<tr>
<td>Final Group Project</td>
<td>22.5</td>
</tr>
<tr>
<td>Attendance</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

A: [90.0,100]; B: [80.0,90.0); C: [70.0,80.0); D: [60.0,70.0); F: [0.0,60.0)

On Moodle, each grade interval will be divided into thirds: a + will be assigned to the top third, a - to the bottom third (e.g., if you earned a 92.0, you would get an A-). This is for your information only, and will **not** appear on your transcript: on CATPAWS only unqualified letter grades (A,B,C,D,F, I) will be reported.
Grades are weighted by category. Within each category items are expressed as percentages and averaged. Say you had 2 quizzes, 15/20 and 8/10, your average quiz score would be \((15 + 8)/2 = 77.5\%\). Since the Quizzes weight is 30\%, you would have \(77.5 \times 0.3 = 23.25\) points. Empty categories are ignored when grades are calculated, so the weights during the semester will only reflect categories for which you have one or more grades. For instance, suppose you had 77.5\% in the Quizzes category, 85\% in the Assignments category, and nothing else. Your weights would be 30/50 & 20/50 (not 30/100 & 20/100), so your score in the course would be \(77.5 \times 0.6 + 85.0 \times 0.4 = 80.50\). (See illustration at right).

After the midterm group project, the weights would be include the 22.5\% weight, and would thence become 30/72.5, 20/72.5 and 22.5/72.5.

**Course Philosophy, Policies and Observations**

1. **First things first.** This is a special projects class being offered to familiarize students with aspects of game development. While unlikely that you will find employment as a full-time game developer as a result of taking just one course, this course will give you a much better appreciation for what goes in to game development; it will also help hone your problem solving, coding, design and presentation skills, and by working on multiple projects, in teams, also help prepare you for the workforce.

2. Some class periods will include platform-agnostic lectures — discussion of the theory of games that is independent of any particular game platform. Most will focus on a wildly popular and insanely priced game development platform — because theory can only take you so far.

3. **Friday is Funday™.** Students will be solicited to make a short (≈ 5-10 minute) presentation demoing your favorite game.

4. **Grades** will be posted on cs.mprogers.org, in the categories listed above. One other category, "Raw Grades", may be ignored (it is used to facilitate scaling but does not affect your gap directly). Concerns about a grade must be raised within 7 days of its posting.

5. **Moodle Considerations.** Please set your time zone properly in your Moodle profile, otherwise your times will be wrong and you may miss an assignment. Also, please upload a picture of yourself to help your instructor figure out who you are.

6. **Quizzes** will be given weekly during class.

7. **Rubrics.** Midterm and final group projects will be assessed using the rubric found here.

8. **Final Exams.** The final group project will be presented during the scheduled final exam time for this course, **Thursday, 17/12/2015, 9:40-11:40 AM**. Students absent for the final exam will receive a 0 for the final exam.

9. **Academic Honesty.** The policy stated in the Northwest Missouri State University Undergraduate (or Graduate) Academic Catalog will be followed. The document entitled
Academic Integrity in CSIS Classes, posted on the course website, clearly explains those types of behavior that would be considered academic dishonesty. You are responsible for reading this document and also the policy as stated in the Graduate Catalog and abiding by the guidelines described therein.

10. **Cheating.** Students cheating on a quiz will receive an F for the course, and will subsequently be unemployable within the department. A few students, under the stress of an quiz, mistakenly *overestimate* the importance of a question on their overall GPA (minuscule: an individual question will have virtually *no* effect on your GPA), and underestimate the cost of cheating (huge: unemployment and the requirement to repeat a course).

11. **Collaboration.** Game development can be a fun and rewarding activity if you do it. While you may discuss individual assignments in general terms with your fellow students, the final assignment must be yours and yours alone. If you do seek help (from the instructor, TA, or fellow student), acknowledge the fact in the comments. Obviously this does not apply to group projects.

12. **Late Assignments.** All assignments must be uploaded by the due date to cs.mprogers.org. Submissions by email will not be accepted. Late submissions will incur a 10% penalty per 24 hour period, and will not be accepted once the assignment has been discussed in class.

13. **Class attendance** will be taken periodically, by means of a short attendance quiz during the first minute or two of class. Don't be late, and make sure you are connected to the website by 1 PM, otherwise you might miss a quiz. There are no makeups, and each quiz is worth 0.5% of your grade.

14. **Silence all cellphones**, etc., before class. Any time a student's cellphone rings during class, the recipient will lose 1% in the Class Attendance category. If the instructor's cellphone rings during class, all students will receive an extra 1% in the Class Attendance category (unless it comes from somebody in the class, in which case the two cancel each other out).

15. **Accommodations Statement:** Students in this course who need disability accommodations/modifications should present a copy of their official Northwest accommodation letter from the LAP/S Committee to the instructor during private office hours as early in the term as possible. Additional information can be found online at www.nwmissouri.edu/swd.

16. **Syllabus Revisions** (based on CITE Office recommendations): This syllabus is not a contract and is subject to change at the discretion of the instructor to accommodate instructional and/or student needs. Changes to the syllabus will be announced in class, but it is the sole responsibility of the student to maintain an updated course syllabus.

**FAQ**

**Why do we use a moodle site (cs.mprogers.org)?**
Moodle is an open-source course management system that is ranked the most popular in the world, and is far superior to any other CMS in terms of usability and interface design. Students should see cutting-edge open source software that works in the real world, and Moodle is a prime example.

**Why do you assess us over things that you didn't explicitly teach in class?**
Tests are designed to see if you remember and understand; but also to see if you can apply, analyze, evaluate, and create. The "things that were not explicitly taught" type questions are
really an attempt to see if you can put together disparate subjects. You might not, and that's OK.

**Why don’t we learn how to do x (where x == some new technology)?**
Unfortunately, we do not have the time in this course to make you into an expert on all things related to game development.

**Why did we not get a textbook?**
Because this is a special projects class, and this particular topic is offered infrequently.
Therefore, the university will not supply a textbook.

### Getting Help

Help is available from your instructor. I have copious office hours, please take advantage of them. In addition, we have TAs who will hold office hours (at a time and date to be determined during the first week of class).