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| Screen Shot 2015-04-16 at 9 | Course Number: | AGGP 225c |
| Course Name: | 3-D Game Engine Application Development |
| Course Sections: | 1 |
| Course Format: | 2 hour lecture/week & 3 hour lab/week |
| Semester/Year: | Fall 2020 |

Course Description:

Students in this course will use a commercially available game engine or framework. The majority of the work in the class will be hands-on using these technologies. A common practice within the industry is team development of applications using licensed game engine technology. Students will understand how to use the engine's interwoven mesh of different systems, which include from user input, networking and rendering. Game modification, also known as "Modding", and source control will be covered.

Prerequisites:

AGGP 131c, AGGP 140c, CPET 125c; or permission of the AGGP Program Coordinator

Instructor(s):

Instructor: Gregory Walek

E-mail: [gwalek@ccsnh.edu](mailto:gwalek@ccsnh.edu)

**Instructor Availability:**

Professor Walekis also available to meet by appointment when not in another class.

**Required Text(s) and Material(s)**:

Software:

Unity 2019.4 LTS

Photon Unity Networking 2 (Free from Asset Store)

Textbook:

Game Programming Patters

Robert Nystrom

Versions available in print, ebook, and pdf

Entire Text is available for free from the book’s website

<https://gameprogrammingpatterns.com/>

Supplemental Text(s) and Material(s):

None

Other Course Requirements:

AGGP 225 will be held on-line in the AGGP Discord. Students are expected to be on-line in “Virtual Little 231” for the class. Students will be marked absent if they are not online.

Students will use their real name as their “Nickname” on the AGGP Discord.

Students are expected to undertake research on their own and incorporate it into their own work. Students are expected to review and use documentation as supplied from appropriate developer and\or manufacturer.

Canvass Orientation:

If this is your first time using Canvas at CCSNH, please complete the [Canvas student orientation](https://ccsnh.instructure.com/courses/101). This orientation offers the opportunity to familiarize you with navigating and using Canvas.

Available Technical Support - If you need help navigating this course, explore the Canvas [Student Guide](https://community.canvaslms.com/docs/DOC-10701). The Student Guide, Chat, and Phone offer helpful information and are always found by clicking on the  help button on the bottom-right side of every page in Canvas.

Couse Schedule:

*Course Schedule and due dates are subject to change.*

*Updates will be posted to Canvas*

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| --- | --- | --- | --- | --- |
| **WEEK** | **LECTURE DATE** | **LAB DATE** | **TOPIC** | **NOTES** |
| 1 | 8/31 | 9/2 | Class introduction  Command Pattern  Flyweight Pattern & Scriptable Objects |  |
| 2 | 9/7 | 9/9 | Prototype Pattern  Singleton Pattern  Service Locator Pattern | Labor Day: No Lecture  DUE 9/9  Lab 1: Command Pattern |
| 3 | 9/14 | 9/16 | Bolt Scripting  Observer Pattern  Delegates & Events | DUE 9/14  Bolt Scripting Assignment  Lab 2: Scriptable Object |
| 4 | 9/21 | 9/23 | Bolt Scripting  State Pattern | DUE 9/23 Lab 3: Observer Pattern |
| 5 | 9/28 | 9/30 | ECS  Component Pattern | DUE 9/30 Lab 4: State Pattern  DOTS & ECS Assignment |
| 6 | 10/5 | 10/7 | ECS |  |
| 7 | 10/12 | 10/14 | Finish ECS  Start Multiplayer \ Photon |  |
| 8 | 10/19 | 10/21 | Multiplayer \ Photon | Multiplayer Labs will be Determined as needed. |
| 9 | 10/26 | 10/28 | Multiplayer \ Photon |  |
| 10 | 11/2 | 11/4 | Multiplayer \ Photon |  |
| 11 | 11/9 | 11/11 | Final Project |  |
| 12 | 11/16 | 11/18 | Final Project |  |
| 13 | 11/23 | 11/25 | Final Project |  |
| 14 | 11/30 | 12/2 | Final Project |  |
| 15 | 12/7 | 12/9 | Final Project |  |
| FINALS | 12/14 –  12/17 |  | Date and time for Final will be posted later in the term. |  |

Computers/Software/Printers:

It is the student’s responsibility to have access to a PC and the ability to:

* connect to the web including SIS and Canvas,
* use their NHTI email account to send and receive email; including attachments,
* use a word processor (e.g. Word) to produce documents,
* store and retrieve files to removable media (e.g. thumb drive),
* print pdf and Microsoft Office documents, and
* install and use software utilized in this course.

Technical Standards:

The exercises in this course are designed to reflect the environment typically found in the game development and software engineering industry. The knowledge and skills developed in this course are required by employers of software developers. As such:

• The lab exercises for this course require the student to possess skills to

(i) Operate a computer running a modern desktop operating system;

(ii) Write, edit, debug, and compile code using the selected programming languages and integrated development environments;

(iii) Maintain a safe lab environment for the student and other students;

(iv) Work in a team environment with other students;

(v) Demonstration work for review in a public setting, including peers (other students & faculty).

• Some lab exercises limit the time a student has to complete the lab exercise.

Class Cancelations:

Campus wide Cancellation:

<http://www.nhti.edu/student-life/student-handbook/cancellations-and-delays>

Students should also sign up for alerts to be sent to their email and/or mobile phone. <https://www.nhti.edu/student-life/campus-safety/nhti-alerts>

Cancelling this Class:

When the instructor cancels or delays the start of lecture/lab, the instructor will post the cancellation to the course’s Canvas and send an email to students’ email accounts as far in advance as possible. The same notice will be posted in the corresponding classroom/lab.

Student Communication Responsibility:

* Students are responsible for reading their NHTI student email at least once each day.
* Students are responsible for regularly accessing this course’s Canvas for the latest course announcements, assignments, and course materials.
* Canvas will be used for instructor announcements; an email noting the announcement will be sent to each student’s NHTI email account.
* Canvas will serve as the repository for instructor provided course materials, schedules, etc.
* All lecture assignments will be posted to this course’s Canvas.
* Grades for assignments, labs, quizzes, etc. will be posted to Canvas regularly. Students should retain their graded materials and verify that the grades posted to Canvass are match.

Instructional Methods:

The primary delivery of course concepts will be through lectures utilizing the chalk\white board, classroom discussion, Power Point slides, and software demonstrations. Course assignments are designed for comprehension of the course material. Students are expected to research topics, learn them, and be able to demonstrate to peers for their understanding.

Assessment of Student Level of Achievement Measured Against Specific Course Objectives:

Students level of achievement against specific course objectives is measured by:

* Research, Presentations, Written Work,
* Software Assignments
* Participation and conduct during lab and lecture

Grade Calculation

* Labs and Written work 60% of course grade
* Final Project 30 % of course grade
* Professionalism (*see below*) 10% of course grade

Note: A student must have successfully complete all work in each section to pass this course. Students who do not meet this criteria will receive a failing grade regardless of all other work submitted.

Grading System:

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| A | 93 - 100 | B | 83 – 86.9 | C | 73 – 76.9 | D | 63 – 66.9 |
| A- | 90 – 92.9 | B- | 80 – 82.9 | C- | 70 – 72.9 | D- | 60 – 62.9 |
| B+ | 87 – 89.9 | C+ | 77 – 79.9 | D+ | 67 – 69.9 | F | 0 – 59.9 |

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| Other Grades | W | WP | WF | AF |

For the definition of the grades W, WP, WF, and AF, please refer to the NHTI Grading Policy at: <http://www.nhti.edu/academics/requirements-policies/grading-system>

**Attendance:**

**ATTENDANCE WILL BE TAKEN.**

Being on time and attendance at all lectures and labs is a requirement for successful completion of this course. While there may be circumstances over which the student has no control that may necessitate absence from lecture or lab, such absences do not excuse the student from being responsible for the course material missed due to that absence.

Any student that is absent for 10% or more of the semester total number of labs and lectures may receive an immediate grade of AF for the course. This course has 1 lecture/week and 1 lab/week for 15 weeks. Missing 4 or more of any combination of labs/lectures may result in an AF.

Late Assignments:

All homework assignments, pre-lab assignments, and lab reports have due dates posted to Canvas. This out-of-class/lab course work is a critical part of mastering the course material by:

1) reinforcing and supplementing what was taught in lecture,

2) developing the student’s problem solving skills,

3) developing the student’s ability to learn new material/concepts on their own and

4) developing the student’s ability to meet schedule deadlines.

All of these are essential to preparing students to meet the demands of the “hi-tech” industry.

Because new course material is covered each week and builds on the previous week’s material, completing assigned out-of-class/lab work on time is essential.

* Unless otherwise noted, lecture assignments are due at beginning of the lecture or it is late.
* Unless otherwise noted, lab reports and pre-lab assignments are due at beginning of the lab or it is late.

Student absence from lecture or lab does not excuse the student from the due date for assigned out-of-class/lab course work. Therefore, the student should give the instructor the out-of-class/lab work prior to the due date or scan each page to pdf and email the out-of-class/lab work to the instructor by the due date (or take a clearly readable picture of each page and email that).

Homework assignments: 15% deducted for each day late

Pre-Lab assignments: Grade of 0 for being late but must be completed prior to starting the lab exercise.

Lab Reports: 15% deducted for each day late

Lecture and Lab Etiquette:

Unless explicitly allowed by the professor, students should not use PC’s, cell phones, or be texting during the lecture or lab. Please set cell phones to silent during lab or lecture, and keep “chit-chat” to a minimum during lab time.

For safety reasons and for the protection of equipment, no food or drink is allowed in the lab. Student may bring a beverage to lecture but may not eat during the lecture.

Student Delivery of Completed Assignments:

* All programming assignments will be returned to the instructor electronically using Canvas. The instructions for the procedure to return assignments electronically are posted to this course’s Canvas.
* All lecture assignments (homework) will be returned to the instructor in paper format.

Document Formats:

Computer Programs: See the programming format document posted to this course’s Canvas.

Assignments: See the assignment format document posted to this course’s Canvas.

Lab Reports: See the lab report format document posted to this course’s Canvas.

NOTE: If assignments, labs, quizzes, and exams are not neat and legible, points will be deducted.

Collaboration Versus Cheating Policy: <edit for course as needed>

* Students are encouraged to provide appropriate support to their peers. For example, sharing concepts and ideas with peers is appropriate support.
* However, providing appropriate support to a peer should NOT result in a reduction of the academic requirements or rigor all students are expected to meet for course work. For example, it is NOT appropriate to share your work to another student or to provide answers to assigned course work (e.g. homework, lab results, lab exercises, quizzes & tests, etc.)
* Unless otherwise specified by the instructor, students repeating a course cannot submit, or use in any way, their work from a previous semester. Doing so will be considered cheating.
* Unless otherwise specified by the instructor, all assignments, pre-labs, lab reports, take home exams, etc. should represent the work of the student only. Students doing otherwise may be considered to have plagiarized or cheated.
* Students using answer keys, another student’s work from a previous semester, etc. may be considered to have plagiarized or cheated.
* Any portion of work turned in, that is not the sole product of the student, should be clearly identified and annotated with a reference indicating the source. In such cases, the student will not be considered to have plagiarized or cheated. However, the instructor has the discretion to deduct points from the grade for the portion of the work that was not the sole product of the student.
* The department head may impose additional and more serious disciplinary action when cheating is discovered.
* See also NHTI policy: <http://www.nhti.edu/academics/requirements-policies/plagiarismcheating-policy-and-procedures>

**Minimum Grade:**

The minimum grade in AGGP major courses C-. Any grade below this indicates that the student is not ready to continue with subsequent courses or to successfully enter the workforce. As such, major courses with a grade of less than C will not count toward meeting the program’s completion requirements.

**Academic Affairs Notices:**

Each student is responsible for reading the Academic Affairs Notices[[1]](#footnote-1) that are posted in this folder on Canvass.

1. This semester’s Academic Affairs Notices are the same for all courses taught at NHTI [↑](#footnote-ref-1)