

**University of Denver
COMP 3703
Video Game AI
Spring 2013**

Professor: Dr. Nathan Sturtevant
John Greene Hall 119
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OH: Tu4-5, F11-12

Teaching Assistant Stephen Rice
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OH: MW 2:00-4:00

Course Web Page: <http://web.cs.du.edu/~sturtevant/s13-ai.html>

Lecture Room & Time: John Greene Hall 318
TuTh 2:00-3:50 pm

Course Description: This course will cover the techniques used in modern video game AI, such as scripting, finite state machines, and behavior trees. Techniques will be related to design issues around AI and games. A student completing this class should have a good understanding of the issues faced in creating AI for games.

Course Prerequisites: COMP 2355. Programming ability in C/C++ is required.

Required Textbook:

Artificial Intelligence for Games, second Edition
Ian Millington & John Funge

Grade Evaluation:

<u>COURSEWORK</u>	<u>WEIGHTING</u>
Short Assignments (6 total)	30%
Quizzes	10%
Midterm	20%
Course Project	15%
Final	25%

Course marks will be determined on a mix between a curved and absolute scale. (No student will do worse than they would on a curve, but might do better.)

LATE WORK: Late work will be accepted at a penalty of 10% per day. That is, an assignment turned in 1 min-24 hours late will receive a maximum of 90% credit. An assignment 24-48 hours late will receive a maximum of 80% credit.

EXAMS: Electronic equipment (such as a calculator, MP3 player, or cell phone) is not to be brought to the exam. *Exams must be written in ink; bring a pen to every exam.*

CELL PHONES: Cell phones are to be turned off/silent during lectures.

LAPTOP COMPUTERS: Laptops can be brought to lecture for the purpose of taking notes. They should not be used for other purposes during lecture. If the use of a laptop during lecture becomes disruptive, you may be requested to discontinue its usage.

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Tentative Course Schedule

Week	Dates	Topic	Reading
1	March 26	Course overview, Background	1-2
	March 28	Brief AI History; PacMan Postmortem	†
2	April 2	Game Design & AI*	††
	April 4	Basic Movement	3.1-3.2
3	April 9	Steering*	3.3-3.4
	April 11	Movement Prediction, Jumping	3.5-3.8
4	April 16	Pathfinding (Dijkstra, A*)*	4.1-4.3
	April 18	Representations	
5	April 23	Midterm	
	April 25	Decision Trees	5.2
6	April 30	Behavior Trees*	5.4
	May 2	State Machines	5.3
7	May 7	Scripting*	5.10
	May 9	Tactics	6.2
8	May 14	Tactical Pathfinding	6.1, 6.3
	May 16	Learning*	Ch 7.1-7.3
9	May 21	Guest Lecture (TBA)	
	May 23	Guest Lecture (TBA)	
10	May 28	Guest Lecture (TBA)	
	May 30	Review / Wrap-Up	
	June 4	Final Exam	

* **Short Assignment**

† <http://www.gdcvault.com/play/1014631/Classic-Game-Postmortem-PAC>

†† http://chrishecker.com/My_AIIDE_2010_Lecture_on_Game_AI