3D Visual Effects Spring 2020

ARTS 4060-01
Tuesday, Friday 8:00am – 9:50am
Sage Lab, VAST Studio, 2411

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Computer Science is no more about computers than astronomy is about telescopes.
- E. W. Dijkstra

Abstract:

This course will explore conceptual ideas with a developed toolkit of skills. Skills possibly covered will be: scripting, advanced rendering and lighting, visual effects, fluids, and simulations. Emphasis will be placed on self-directed, conceptual, finished, high quality artwork. This course will be taught in an atelier style, where student motivation and collegial support are strongly emphasized.

Learning Outcomes:

By completion of the course…

- Students will be able to research and teach themselves advanced computer graphics technique.
- Students will be able to develop their own digital tools, techniques and pipelines.
- Students will be able to use simulation techniques to create visual effects techniques.

Supplies:

Required:

- Notebook
- RPI Box account
- Data storage – And lots of it. Whichever means of saving your files is most trustworthy and effective for you.

Suggested:

- Elemental Magic, Volume 1: The Art of Special Effects Animation. - https://www.amazon.com/Elemental-Magic-Special-Effects-Animation/dp/0240811631 There is also a book 2 for those interested.
- Account to https://www.pluralsight.com
- Learning Maya 2009 : The Special Effects Handbook. – While this book is not required, it contains great examples of advanced texturing, lighting, and rendering techniques.
- Maya Visual Effects the Innovator's Guide – While also not required, it has numerous trick and tips.

On Reserve in RPI Library:

- Animating Cartoon Characters in Maya TR897.7.A597 2008
- Facial Rigging and Animation in Maya Bundle TR897.7.F33 2006, TR897.7 .F335 2006
- Quadruped Rigging and Animation in Maya Bundle TR897.7.A598 2007, TR897.7 .R569 2007
- UV Mapping Workflows in Maya TR897.7.U8 2008
- Introduction to Maya Muscle TR897.7.I68 2008

Code of Conduct:

We're a mix of many people with many backgrounds with many levels of experience. We'll use the Django Code of Conduct which breaks down to the following list; although, I would encourage following the link to read the details. It's a common practice in many FLOSS and similar software communities.

- Be friendly and patient
- Be welcoming
- Be considerate
- Be respectful
- Be careful in the words that we choose
- Try to understand why we disagree

This was developed by the TODO Group which has many more useful links for further information, for example, Geek Feminism.

Important Points:

Excuses:

Excuses are only acceptable in the following four scenarios: death of family member, a note from doctor or documentation of hospitalization, viable religious observance, and presentation or exhibition of academic work or research at a conference, symposium, gallery, museum, etc. Singular sick days are excusable without documentation within a reasonable limit – for example: two. Illness spanning two or more consecutive class days is not excusable without documentation. Excuses must be declared and accepted before class time by phone, email, or in person.

Studio Format/ Work Load:

This course does not require everyday attention, although it is a studio course and will require six to ten hours of work outside of class each week on average.

E-mail:

E-mail is the most effective communication with me outside of class. I will use your RPI account to communicate with you.

Distractive Computing:

No computing, exceptions are: following in class demos and work in class. Refusal to turn off monitors, close laptops, etc will result in receiving an absence for that day.

Grading:

Assignments:

- Assignments are due at the beginning of class.
- Twenty-five percent of an assignment's total points will be deducted per day late. Days are calculated from the time an assignment is due.

- You will be required to speak and present your work. You will also be required to speak about your colleagues' work. Part of each assignment grade will be based on your participation during critique.
- Voluntary extra assignments for an increase in a final grade will not be accepted.
- Redoing an assignment for a potentially higher score is acceptable only if the assignment was originally turned in on time and if the re-completed assignment is submitted within four days of the assignment's original deadline.

Attendance:
- Attendance is mandatory and taken at the beginning of class.
- Only disputes brought to the instructor's attention within one week of the infraction will be considered and discussed.
- Each three absences equal reduction final grade by one letter.

Overall:
- All appeals must be brought to the instructor during office hours or at a scheduled time convenient to both parties. Keep in mind that an appeal has the potential to raise or lower your grade.
- Midterm grades will be sent individually to your RPI email account. However, you may request grades at any time.

Grade	Total Points	Expectations
A	100 – 93	Excellent: consistent effort, timely, aesthetic and conceptual/intellectual
A -	92.99 – 90	
B +	89.99 – 87	
B	86.99 – 83	Good: effort, timely, aesthetic or conceptual/ intellectual
B -	82.99 – 80	
C +	79.99 – 77	
C	76.99 – 73	Satisfactory: some effort, timely
C -	72.99 – 70	
D +	69.99 – 67	
D	66.99 – 60	Passable: little effort
F	59.99 – 0	Failure

Academic Integrity

Student-teacher relationships are built on trust. Students must trust that teachers have made appropriate decisions about the structure and content of the courses they teach, and teachers must trust that assignments that students turn in are their own. Acts which violate this trust undermine the educational process. The Rensselaer Handbook of Student Rights and Responsibilities defines various forms of Academic Dishonesty and you should make yourself familiar with these.

All work produced in this course must be original and created by the student. First infraction will result in a failure for the course and a report to the Office of the Dean.

Collaboration

Collaborative work and discussion is encouraged. Instructor must be notified of students' intention to collaborate on assignments well ahead of that assignment's deadline. Instructor will determine whether or not collaboration will be allowed. Upon assignment completion, there must be documentation of each member's contribution to the finished assignment. The instructor reserves the right to award members of the collaboration different grades.

Project Assignment Schedule:

Projects are due on the date that matches the end of their time block. For example, the first assignment "Asset Checkpoint" is due Jan 31. Readings are supplied for students' use in relation to project assignments. Discussion about readings will not occur unless otherwise notified during the class time in which they are assigned.

14-Jan	Basic Houdini	Asset Checkpoint
17-Jan	Houdini Proceduralism	15%
21-Jan	Houdini Shader Networks	
24-Jan	Houdini to Unity, Unreal, Maya	
28-Jan	Work in Class	
31-Jan	Critique & Houdini Assets	
4-Feb	Shawn in Ireland	Asset Final
7-Feb	Shawn in Ireland	10%
11-Feb	Work in Class	
14-Feb	Critique Houdini Asset	
18-Feb	mon on tues	
21-Feb	Houdini Dynamics	Goldberg
25-Feb	Houdini Mantra & Renderman	25%
28-Feb	Work in Class	
3-Mar	Work in Class	
6-Mar	Goldberg Critique	
10-Mar	Spring Break	
13-Mar	Spring Break	
17-Mar	Spring Break part 2	
20-Mar	Spring Break part 2	
24-Mar	Houdini Particles	Elemental
27-Mar	Fluids - water, clouds	25%
31-Mar	Fluids - fire	
	webex meetings	
10-Apr	Critique Elemental Start	
12-Apr	Critique Elemental End	
14-Apr	Houdini Destruction	Crumble Checkpoint
17-Apr	Work in Class	15%
	webex meetings	
28-Apr	Critique Crumble Start	
30-Apr	Critique Crumble End	
	webex meetings	Crumble

4-May	Critique Crumble Start	
6-May	Critique Crumble End	10%

Changes to syllabus may be made at instructor's best discretion with notification to the student