Syllabus

Winter 2021

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08:00 AM - 10:30 AM

SCAD®

The University for Creative Careers®

School of Digital Media, Department of Visual Effects, Savannah

TECH 312 - Advanced Application Scripting
Section: 01 CRN: 20916

SCAD Mission:

SCAD prepares talented students for creative professions through engaged teaching and learning in a positively oriented university environment.

Course Description:

This course explores the use of MEL, Autodesk Mayas embedded scripting language, Python and other modes of shell scripting as tools for automating repetitive tasks, customizing the user experience, utilizing external data sources and extending the basic toolset with custom features. Prerequisite(s): VSFX 210 or ITGM 236 or ANIM 249.

Course Goals: The following course goals articulate the general objectives and purpose of this course:

1. Students will gain an understanding of the integration of scripting languages in Maya, Python and other scripting languages.
2. Students will develop an advanced understanding of other general programming concepts.
3. Students will develop and document a tool with a custom user interface.

Student Learning Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

1. Students will demonstrate the ability to conceptualize, plan and develop MEL, Python and shell scripts.
2. Students will demonstrate the ability to utilize, modify and troubleshoot third-party MEL, Python and shell scripts.
3. Students will demonstrate the ability to utilize external data sources in Maya through scripting.
4. Students will demonstrate the ability to present a project to peers and a general audience.

Schedule of Classes:

Key events including assignments, projects due dates/exam dates:

Pre-quarter assignment	Review the best technical breakdowns, images and animation of the Winter 2020 quarter paying particular attention to the different communication styles of the students. https://sdm.scad.edu/faculty/mkesson/tech312/wip/best/winter2020/index.html
Class 1: **Mon, January 04, 2021**	• Windows UI Terminology • Installing the required software • setting up and up-loading the portfolio web sites -download • executing a python script from the command line • executing a python script from Cutter • accessing python documentation - control + double-click • fundza.com quick reference I • tutorialspoint.com quick tutorials • built-in datatypes
Class 2: **Wed, January 06, 2021**	• importing custom modules • using the os and os.path modules • loops & conditionls • implementing a proc • generating particle geometry for Maya • Challenge 1 - write a script to generate mel files that define: • a spherical cloud of particles, • a flat disk of particles, • a flat torus of particles.
Class 3: **Mon, January 11, 2021**	• Review the "Maya particle geometry" challenge. • using the "__file__" attribute • using os.getcwd() • using the inspect module • using the os.path module to construct file paths
Class 4: **Wed, January 13, 2021**	• using the glob module • writing a ffmpeg script that will create an MP4 movie from a sequence of JPEGs [download sample jpgs]
Class 5: **Mon, January 18, 2021**	MLK Day. The make class will held on Friday Jan 22nd at 8am.

Class 6: **Wed, January 20, 2021**	NOTE: This is, in effect, class 5. Topics; • ensuring a python script produces OS specific output • preparing the technical breakdown for the "JPGs to MP4" challenge Therefore, the following topics will be addressed on the make up class on Friday 22nd Jan at 8am. • Review the "JPGs to MP4" technical breakdowns. • download the latest version of Cutter • begin challenge 3: compress existing MP4 movies • downloading and testing PyQt5 • using if __name__=="__main__": for debug outputs • Write a ffmpeg script Compress MP4 [due session 7]
Class 7: **Mon, January 25, 2021**	• Review the "Compress MP4" technical breakdowns. • Basic Introduction & Terminology • implementing a class • using a class • defining a sub-class • Introduction to PyQt5 - see https://pythonbasics.org/pyqt • using Cutter to access PyQt documentation • subclassing the QDialog - demo1_ui.py • laying out "widgets" to make a user interface (UI) • begin implementing a GUI for "compress MP4"
Class 8: **Wed, January 27, 2021**	• adding and querying the state of a QLineEdit and a QComboBox • checking for user errors • conclude the implementation of a GUI for "compress MP4" • Complete Part One of Image Sequence to MP4 [due sessions 9]
Class 9: **Mon, February 01, 2021**	• **Review Part One** of the students "image sequence to MP4" GUI. • This session will be devoted to assisting the students in their PyQt implementations and to help them upload the photographs of their UI pre-visualizations to their websites.
Class 10: **Wed, February 03, 2021**	• This session will be devoted to assisting the students in their PyQt implementations so that their GUI's are fully functional. • download Cutter version 8.2.0 • How to package your PyQt5 project as stand-alone application (Windows) • Complete Image Sequence to MP4 challenge [due sessions 11]
Class 11: **Mon, February 08, 2021**	• Review the students "image sequence to MP4" GUI. • testing your current Maya environment • customizing your Maya environment • editing the maya/2020/Maya.env file • editing the maya/scripts/userSetup.mel file • developing a GUI using Maya's PySide2 modules • maya/scripts/qt_dev/slider_demo_ui.py • maya/scripts/qt_dev/sliders.py • using the python command cmds.particle() to create particles • Prepare a Maya GUI to generate a particle system [due sessions 13]

Class 12: **Wed, February 10, 2021**	• using tabs • particlesUI.jpg • Sample TabsDemo main class • Sample tab panel classes • Sample generate Maya particles functions • adding render attributes • Prepare a webpage that outlines your ideas for a personal project. • To be presented at the beginning of the next session.
Class 13: **Mon, February 15, 2021**	• **Review** the "Maya GUI" technical breakdowns. • Each student to make a brief presentation that outlines the nature of their individual project. Students must address the following issues: • overview of the project • outcome of the project • goals to be achieved for each of the remaining sessions. • Studio session devoted to developing solutions to the individual projects.
Class 14: **Wed, February 17, 2021**	• Studio session devoted to developing solutions to the individual projects.
Class 15: **Mon, February 22, 2021**	• Studio session devoted to developing solutions to the individual projects.
Class 16: **Wed, February 24, 2021**	• Studio session devoted to developing solutions to the individual projects.
Class 17: **Mon, March 01, 2021**	• Studio session devoted to developing solutions to the individual projects.
Class 18: **Wed, March 03, 2021**	• Studio session devoted to developing solutions to the individual projects.
Class 19: **Mon, March 08, 2021**	• Studio session devoted to developing the technical breakdowns for the students individual projects.
Class 20: **Wed, March 10, 2021**	• Students will present their individual projects using their web hosted technical breakdowns.

Grading Opportunities:

Your overall course grade will be computed according to the following breakdown:

Assignment	Weight
Challenge 1: Generating particle geometry for Maya [due session 3]	10%
Challenge 2: Writing an ffmpeg scriptJPGs to MP4 [due session 6]	10%
Challenge 3: Writing an ffmpeg scriptCompress MP4 [due session 7]	10%
Challenge 4: Implementing a PyQt ApplicatonImage Sequence to MP4 [due sessions 9 & 11]	20%
Challenge 5: Implement a Maya GUI for challenge 1 [due session 13]	25%
Individual Project	25%
Total Weight	**100 percent**

Grading Standards	Range
Letter grade: **A** = excellent	90 —100 percent
Letter grade: **B** = good	80 — 89 percent
Letter grade: **C** = *	70 — 79 percent
Letter grade: **D** = *	60 — 69 percent
Letter grade: **F** = failing	0 — 59 percent

*Refer to the student handbooks and departmental standards for minimal acceptance for passing grade.

Course Information:

Field Trip(s):

ELOs & Field Trips will be provided via Blackboard Announcements prior to the 1st Day of Class

Extra Help Session(s):

TBA

University-wide extended learning opportunities

Extended learning opportunities are designed to enrich and expand students' course-based learning experiences. Attend at least three (3) of the following 10 university-wide extended learning opportunities (i.e., Guests & Gusto, Bee Well, SCADextra and SCADamp workshops, or SCAD signature events) either on-ground or virtually to further explore your discipline, discover new information, and deepen academic engagement.

Academic Skills Workshop Series

Title: Bit by Bit: Skills for Goal-Setting and Strategic Learning(draft)

Blurb: Join this beginner workshop to discuss trusted techniques to help you set manageable goals and more importantly, achieve them.

Week: 2

Day: Wednesday 1/13/21

Time: 5pm

Presenter(s): Ben Barbour

ZOOM Link: https://scad.zoom.us/j/96514400684

Title: Time's On Your Side: Skills for Time Management

Blurb: Improve your time management and self-regulation skills by exploring methods for creating and maintaining a schedule to succeed in class no matter your location.

Week: 4

Day: Friday 1/29/21

Time: 1pm

Presenter(s): Laura Dombroski

ZOOM Link: https://scad.zoom.us/s/91534393984

Title: Noteworthy: Skills for Notetaking and Memorization

Blurb: Discover practical strategies to help you retain information from class, craft more useful notes and better prepare for exams.

Week: 5

Day: Wednesday 2/3/21

Time: 5pm

Presenter(s): Ben Barbour

ZOOM Link: https://scad.zoom.us/j/96514400684

Title: We've Got This: Skills for Collaboration and Group Work

Blurb: Learn how to avoid the common pitfalls of group work as we review techniques for building partnership, managing accountability, communicating and problem-solving as a team.

Week: 7

Day: Friday 2/19/21

Time: 1pm

Presenter(s): Ben Barbour

ZOOM Link: https://scad.zoom.us/j/96514400684

Writing Workshop Series

Title: Creating Strong Research Questions

Blurb: This graduate writing workshop will cover how to write the over-arching thesis statement and connect writing research questions for the methodology section of your thesis.

Week: 2

Day: Friday, Jan. 15

Time: 2pm

Presenter(s): Jennifer Johnson

Title: Personal Statements for Professional Profiles (Professional Writing)

Blurb: Discover the common types of personal statements and discuss compelling ways to tell your story and strike the right tone for your audience in this professional writing workshop.

Week: 5

Day: Friday

Presenter(s): Carrie Nelson

Title: Find Your Voice (Personal and Creative writing)

Blurb: Explore the elements that contribute to voice to discover what makes your writing unique.

Week: 7

Day: Friday

Presenter(s): Carrie Nelson and Laura Dombroski

Title: Common Character Arcs

Week: 8

Day: Wednesday

Time: 7 pm

Presenter(s): Carrie Nelson

Please refer to the grading opportunities section of this syllabus to see how your participation in the above extended learning opportunities and your completion of related assignments contribute to your overall grade for this course.

Additional extended learning opportunities:

KAYA. Exhibition: 'Under_Ursus'

Thursday, Jan 14th 8pm

Susan Zwerman, Author of VES Handbook and Producing Visual Effects, Los Angles, CA

“Producing Visual Effects”

PLEASE RSVP FOR THIS EVENT AT https://forms.gle/jewjCjVqfXuczKu76

Thursday, Jan 28th 8pm

Jennifer McSpadden, Senior Motion Capture at GoodBye Kansas, Los Angeles, CA

“Motion Capture and Virtual Production”

PLEASE RSVP FOR THIS EVENT AT https://forms.gle/jewjCjVqfXuczKu76

Friday, February 5th 7pm

Jeff Cimprich, 3D Artist at Cincinnati Childrens Hospital, Cincinnati, OH

and

Dheeraj Varandani 3D Generalist at iEXCEL, Omaha, NE.

“Using Visual Effects for Medical Visualization”

PLEASE RSVP FOR THIS EVENT AT https://forms.gle/jewjCjVqfXuczKu76

KAYA is a shape-shifting collaboration between New York-based artists and studio colleagues Kerstin Brätsch and Debo Eilers that has unfolded over the past 10 years. SMA

Group Exhibition: 'I Put a Spell On You: On Artist Collaborations'

Organized by guest curators Sam Bardaouil and Till Fellrath I Put a Spell On You surveys 11 distinct models of collective practice. SMA

HELEN FRANKENTHALER. Exhibition: 'Deliberate Risks: Prints by Helen Frankenthaler'

Deliberate Risks presents works recently acquired for the SCAD Museum of Art Permanent Collection by the pioneering Modernist painter and printmaker Helen Frankenthaler. SMA

deFINE ART 2021

SCAD Museum of Art SCAD FASH MUSEUM OF FASHION + FILM. FEBRUARY 23 – 25, 2021. RSVP (https://www.scadmoa.org/visit) Tours are limited to 10

KATE COOPER. Exhibition

Experimental Gallery Animation | Visual Effects | Immersive Reality | Interactive Design | Motion Media Design | Sound Design Using a visual language she terms “hypercapitalism” SMA

EMILY FURR. Exhibition

Alumni Gallery Art History | Gender Studies | Graphic Design | Painting Emily Furrcreates bold painterly representations of industrial structures. SMA

CHRISTTO AND ANDREW. Exhibition

Gallery 109 Photography | Interior Design | Graphic Design | 3D Design Christto & Andrew are an artistic duo based in Doha, Qatar and Copenhagen, Denmark. SMA

Other Course Information

Review the "Selected Works" of TECH312 from the Winter quarter 2020. In particular, note the work the students completed for their "independent project".
https://sdm.scad.edu/faculty/mkesson/tech312/wip/best/winter2020/index.html

Course Materials:

Required Text(s):

Susan Zwerman and Jeffrey A. Okun, editors (2014).

The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures (2nd Edition): Focal Press, Burlington MA USA:

ISBN-13: 978-0240825182

Recommended Text(s):

Learning Python
Mark Lutz
O'Reilly Media, ISBN 10: 0-596-51398-4

Required Material(s):

Notebook

University Policies:

Academic Integrity:
Under all circumstances, students are expected to be honest in their dealings with faculty, administrative staff and other students.

In class assignments, students must submit work that fairly and accurately reflects their level of accomplishment. Any work that is not a product of the student's own efforts is considered dishonest. Students must not engage in academic dishonesty; doing so can have serious consequences.

Academic dishonesty includes, but is not limited to, the following:
1. Cheating, which includes, but is not limited to, (a) the giving or receiving of any unauthorized assistance in producing assignments or taking quizzes, tests or examinations; (b) dependence on the aid of sources including technology beyond those authorized by the instructor in writing papers, preparing reports, solving problems or carrying out other assignments; (c) the acquisition, without permission, of tests or other academic material belonging to a member of the university faculty or staff; or (d) the use of unauthorized assistance in the preparation of works of art.
2. Plagiarism, which includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished

work of another person without full and clear acknowledgment. Plagiarism also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.
3. Submission of the same work in two or more classes without prior written approval of the professors of the classes involved.
4. Submission of any work not actually produced by the student submitting the work without full and clear written acknowledgement of the actual author or creator of the work.

Attendance Policy:
Students are expected to actively engage in courses to achieve the required learning outcomes. Absences in excess of 20 percent of the course (e.g., five absences for a 10-week course that meets twice per week) result in the student receiving a failing grade, unless the student withdraws from the course in accordance with the withdrawal policy. Absences due to late registration are included in the overall absences permitted for the course.

For on-ground courses, students are expected to attend and participate in all scheduled class periods. Tardiness, early departure, or other time away from class in excess of 15 minutes per class session is considered an absence for that class session.

Students enrolled in eLearning courses are required to check the online course site regularly and academically engage in the daily work of the course. At minimum, students should log in to the course and participate in academically related activities on two separate days per unit/week.

For students enrolled in real-time virtual courses (i.e., SCADnow), active participation in live lectures is the most beneficial form of academic engagement and the best way to demonstrate attendance. If students are unable to attend live lectures due to time zone or other individual challenges, they should demonstrate academic engagement and attendance by logging in to the course and participating in academically related activities on at least two separate days per unit/week.

SCAD faculty monitor and measure attendance for eLearning and SCADnow by documenting each student's weekly academic engagement. Academic engagement is defined as participating in live lectures, demos, or critiques; posting to discussion forums or blogs; submitting assignments; completing quizzes or examinations; attending extra help sessions, office hours, or midterm conferences; and/or corresponding with professors regarding course content via phone, email, text, etc.

Personal Conduct Policy:
Students' appearance and conduct should be appropriate and contribute to the academic and professional atmosphere of SCAD. Any student whose conduct is detrimental to the academic environment or to the well-being of other students, faculty, staff members, or university facilities will be subject to disciplinary action, up to and including expulsion from the university.

Enrollment policies:
Students are responsible for assuring proper enrollment. See scad.edu for information on add/drop, withdrawals, incompletes, and academic standing.

Midterm Conference(s):
Each student enrolled in the course will have a midterm conference scheduled outside of class time with the professor. Students are expected to keep this appointment.

Academic Support and Tutoring:
Academic support for students at all SCAD locations can be found in MySCAD, under the Student Workspace tab, Department Directory, Academic Resources.

Course Evaluations:
Course evaluations offer students a dedicated opportunity to provide constructive feedback on each of their courses. Student feedback gathered through course evaluations is essential to continuously improving the SCAD academic experience. Evaluations are available to students each quarter during Weeks 8, 9, and 10 through MySCAD. For additional information, contact evaluations@scad.edu.

Student Surveys:
SCAD strongly encourages students to provide feedback on their university experience through institutional surveys. The SCAD Student Survey and the Ruffalo Noel Levitz Student Satisfaction Inventory are administered to students across locations each spring. The National Survey of Student Engagement is administered biennially in winter. Following survey administration, SCAD's institutional effectiveness department analyzes and reports results to various SCAD departments to inform data-driven enhancements. For additional information, contact surveys@scad.edu.