Syllabus Fall 2022

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5:00 PM - 7:30 PM



The University for Creative Careers®

School of Animation and Motion, Department of Visual Effects, Savannah

VSFX 313 - Advanced Application Scripting

Section: 01 CRN: 13953

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: Tue, September 13, 2022	 Installing the required software setting up and up-loading the portfolio web sites - download executing a python script from the command line accessing python documentation - control + double-click tutorialspoint.com guick tutorials built-in datatypes
Class 2: Thu, September 15, 2022	 F Strings File Output Generating particle geometry for Maya Assign: Assignment 1: Maya Geometry File (Due Class 4)
Class 3:	
Tue, September 20, 2022	 Review the "Maya particle geometry" Assignment. Introduce PEP-8 Python Style Guide Introduce Linting tools using the "file" attribute using os.getcwd() using the os.path module to construct file path
	Reading: "Beyond the Basic Stuff" (BTBS): Chap. 1 http://inventwithpython.com/beyond/chapter1.html

Class 4: Thu, September 22, 2022	 using the glob module writing a ffmpeg script that will create an MP4 movie from a sequence of JPEGs [download sample jpgs]
	DUE: Assignment 1: Maya Geom Files
	Assign: Assignment 2: JPGs to MP4 (Due Class 6)
	Reading: "Python & QT5" (PyGUI): Chap. 1 & 2
Class 5: Tue, September 27, 2022	 Introduction to OOP (Object Oriented Programing) Basic Introduction & Terminology implementing a class using a class defining a sub-class
	Reading: "Beyond the Basic Stuff" (BTBS): Chap. 15 http://inventwithpython.com/beyond/chapter15.html
Class 6: Thu, September 29, 2022	 Preparing the technical breakdown for the "JPGs to MP4" challenge Review the "JPGs to MP4" technical breakdowns. downloading and testing PyQt5 Intro to PyQT5
	DUE: Assignment 2: JPGs to MP4
	Assign: Assignment 3: Compress MP4 (Due Class 7)
	Reading: PyGUI - Chap. 3 & 4

Class 7: • Review the "Compress MP4" technical breakdowns. Tue, October • Introduction to PyQt5 - see https://pythonbasics.org/pyqt 04, 2022 • subclassing the QDialog - demo1 ui.py laying out "widgets" to make a user interface (UI) DUE: Assignment 3: Compress MP4 Assign: Assignment 4:GUI for Assignment 2 (JPGs to MP4) (Due Class 11, Reviewed Class Reading: PyGUI - Chap. 5 & 6 Class 8: • Introduction to Version Control Thu, October • GIT & GITHub 06, 2022 Reading: "Beyond the Basic Stuff" (BTBS): Chap. 12 _http://inventwithpython.com/beyond/chapter12.html Class 9: • Review Part One of the students "image sequence to MP4" GUI. Tue, October • This session will be devoted to assisting the students in their PyQt implementations 11, 2022 and to help them upload the photographs of their UI pre-visualizations to their websites. Reading: "Beyond the Basic Stuff" (BTBS): Chap. 6 http://inventwithpython.com/beyond/chapter6.html Class 10: Advanced Python Topics Part 1 Thu, October • How to package your PyQt5 project as stand-alone application (Windows) 13, 2022 • Complete GUI for Image Sequence to MP4 challenge [due sessions 11] Reading: PyGUI - Chap. 7

Class 11: • Review the students "image sequence to MP4" GUI. Tue, October • testing your current Maya environment 18, 2022 • 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] DUE: Assignment 4 - GUI for IPGs to MP4 Assign: Assignment 5 - GUI for Maya Geometry (Due Class 13) Class 12: • Libraries & APIs in Python: Pypi.org Thu, October • Prepare a webpage that outlines your ideas for a personal project. 20, 2022 • To be presented at the beginning of the next session. Reading: "The Linux Command Line" (Linux) - Chap. 1 & 2 Class 13: • **Review** the "Maya GUI" technical breakdowns. Tue, October Each student to make a brief presentation that outlines the nature of their 25, 2022 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. DUE: Assignment 5 - GUI for Maya Geometry Assign: Assignment 6 - Individual Project (Due Class 20) Reading: PyGUI - Chap. 8 Class 14: Studio session devoted to developing solutions to the individual projects. Thu, October 27, 2022 Reading: Linux - Chap. 3 & 4

Class 15: Tue, November 01, 2022	 Studio session devoted to developing solutions to the individual projects. Linux Exercise 			
	Reading: PyGUI - Chap. 9			
Class 16: Thu, November 03, 2022	Studio session devoted to developing solutions to the individual projects.			
	Reading: Linux - Chap. 5, 6 & 7			
Class 17: Tue, November 08, 2022	 Studio session devoted to developing solutions to the individual projects. Linux Exercise 			
	Reading: PyGUI - Chap. 10			
Class 18: Thu, November 10, 2022	Studio session devoted to developing solutions to the individual projects.			
2022	Reading: Linux - Chap. 19 & 24			
Class 19: Tue, November 15, 2022	 Studio session devoted to developing the technical breakdowns for the students individual projects. Linux Exercise 			
	Reading: Linux - Chap. 25 & 26			
Class 20: Thu, November 17, 2022	Students will present their individual projects using their web hosted technical breakdowns. DUE: Assigment 6 - Indivdual projects			

Grading Opportunities:

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

Assignment	Weight
Assignment 1: Generating particle geometry for Maya [due session 4]	10%
Assignment 2: Writing an ffmpeg script <u>JPGs to MP4</u> [due session 6]	10%
Assignment 3: Writing an ffmpeg script Compress MP4 [due session 7]	10%
Assignment 4: Implementing a PyQt Application Image Sequence to MP4 [due sessions 9 & 11]	20%
Assignment 5: Implement a Maya GUI for Assignment 1 (Due Class 13)	25%
Assigment 6: 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):

Zoom Sessions can be scheduled by emailing Prof. Marshall directly, gmarshall@scad.edu or by using

Calendly, https://calendly.com/graymarshall

Tentatively Scheduled Sessions:

- Oct. 7, 2022 @ 11:00a -12:00p EST (Week 4)
- Nov 4, 2022 @ 2:00p 3:00p EST (Week 8)
- Additional help sessions may be scheduled as needed

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.

Each student will be required to attend three of the listed ELOs plus the Field trips. Your attendance for these events will be checked through the Google Form @ https://forms.gle/8pQouPEhdHZ1mUiX9

by filling in details of the event and will equal 1% of your grade for each of the three required events you attend.

ELO's (Extended Learning Opportunities)

Please attend <virtually or on-ground> **three** (new or previously recorded) **Extended Learning Opportunities** and post your comments on via the Google Form listed above. It is up to you to choose which events you would like to attend, but the do need to pertinent or relevant (in some way) to this course or major.

ELO events can be chosen from a wide variety of sources: SCAD "Guests & Gusto", SCAD extra, SCAD Amp, Bee Well, VISION (Visual Effects), or other SCAD premiere events that may arise during the quarter. If unsure if an event you want to attend is relevant, please email the event description and link to Professor Marshall (gmarshal@scad.edu) for pre-approval. Thank you.

25th SCAD Savannah Film Festival - Oct. 22-29

Tickets to individual events at the 2022 SCAD Savannah Film Festival **will be available for purchase Monday, Oct. 3, 2022**, online via the schedule or <u>savannahboxoffice.com</u>, by phone at 912.525.5050, or in person at the Savannah Box Office, 216 E. Broughton St. The Savannah Box Office is open 10 a.m. to 5 p.m. Monday through Friday as well as one hour prior to each day's first event.

Passes for the 2022 SCAD Savannah Film Festival, the 25th anniversary, are on sale now. Passes allow access to many or all of the screenings and events during the festival, offering patrons the best chance of being admitted to the festival events they wish to attend. Pass levels have different tiers of festival access. There is no deadline for purchasing passes, but they do sell out quickly.

Purchased passes will be available for pickup at the Savannah Box Office, 216 E. Broughton St., starting Wednesday, Oct. 19, 2022.

It is highly advised that VSFX Majors attend as many of the VISION ELO events as you are able. Please see the link below for the list on how to join the SCAD VISION (Visual Effects) Community so that you access the list of SCAD VISION ELO events.

VISION: A VSFX Virtual Lecture Series -

- Please attend any of the live sessions via zoom.
- RSVP for this event at https://forms.gle/fSxLeVjTph1jGyjh7
- The VISION session will be recorded and available via the VISION blackboard community on week after the event.

https://elearning.scad.edu/webapps/blackboard/execute/announcement? method=search&context=course entry&course id= 102816 1&handle=announcements entry&mode=view

To join the **SCAD VISION** (Visual Effects) **Community** please use these directions:

- 1. Go to "My Communities" in Blackboard
- 2. In the Community Search box, type **VISION** and click **Go**
- 3. Mouse over VSFX VISION and click Enroll
- 4. Click **Submit** on the enrollment prompt
- 5. After enrollment, browse the community and find recordings under "Recordings" in the sidebar, so that you can view the many previously recorded webinars and lectures.

Keep an eye on Blackboard Announcements as well. Under MyCommunities in Blackboard search for VISION and enroll. This will give you access to event announcement and recordings for VISION, DMC and Alumni mentors.

In addition, SCADExtra and Guests & Gusto have their own Tab at the top of Blackboard (same level as MyComunities) that house those recordings.

SCAD-wide ELO events:

https://myevents.scad.edu/

https://app.scad.edu/workshops/

Additional extended learning opportunities

The V.E.S - Visual Effects Society - Video Gallery

link: https://www.visualeffectssociety.com/news/video-gallery/

Oscars - Science & Tech Council Public Programs and Education - presentations

On-going Virtual Production: Are You Game? This program presents some of the most current Virtual Production filmmaking practices and related technological innovations. Academy members from a variety of branches share their experiences and demonstrate how they are innovating and working in this space.

Link: https://www.youtube.com/watch?v=FRc1HvSqjpq

Science & Tech Council programming link: https://oscars.org/science-technology/programming

The Academy Museum of Motion Picture Arts - They have free virtual exhibitions and events

Link: https://www.academymuseum.org/en/

Everyday Storytelling: From Hollywood to Hemingway - Professor Duke Greenhill (105 min)

http://www.kaltura.com/tiny/qnfmg

Sound in Horror Movies - Professor David Stone (183 min)

http://www.kaltura.com/tiny/vtxo3

Collaborative Storytelling: What it means to speak the Language? - Professor Deborah Fowler and VSFX Alumni Mentor, Jennifer McSpadden (117 min)

http://www.kaltura.com/tiny/lfuc4

Making the Mood: The Fundamentals of Art Direction for Animation, Games, and Motion Media-Professor Matt Maloney (89 min)

http://www.kaltura.com/tiny/zvlic

Secrets of Trailer Editing - Professor Christopher Brannan (102 min)

http://www.kaltura.com/tiny/mhdn1

Digital Doubles: Scanning Hollywood (Photogrammetry) - Mr. Garrett llardi (54 min)

http://www.kaltura.com/tiny/icygp

Explore Storyboarding - Professor Ray Goto (65 min)

http://www.kaltura.com/tiny/z3gz0

How to Create Suspense - Professor Dana Shockley (62 min)

http://www.kaltura.com/tiny/rq5u8

Virtual Motion Capture - Professor David Spencer (65 min)

http://www.kaltura.com/tiny/rq5u8

Welcome to Jurassic World! - Professor Phivi Spyridonos (86 min)

http://www.kaltura.com/tiny/ti05t

The Music of James Bond, Part 1 (The Early Years) - Professor Robin Beauchamp (69 min)

http://www.kaltura.com/tiny/sn9te

How to Tell a Story: A Journey Through Three-Act Structure - Professor Chris Millis (124 min)

http://www.kaltura.com/tiny/trcr4

Immersive Films - Professor Michael Chaney (120 min)

http://www.kaltura.com/tiny/sqqs6

Snapshot of the VR Landscape - Professor Walter Woods (82 min)

http://www.kaltura.com/tiny/ki0gk

Immersive Design: VR for Good - Professor Teri Yarbrow (88 min)

http://www.kaltura.com/tiny/zffj5

Mastering the Clone Tool in Adobe Photoshop - Professor Kirt Witte (90 min)

http://www.kaltura.com/tiny/mtge2

We just have to be better at Matte Painting - Mr. Andres Galeano (100 min)

http://www.kaltura.com/tiny/pmv7i

ACES to the Rescue: How to Untangle the Modern Production Workflow- Professor Gray Marshall (69 min)

http://www.kaltura.com/tiny/o5kg4

Introduction to the Unreal Engine - Professor Charles Shami (120 min)

http://www.kaltura.com/tiny/zvrwq

Additional Extended Learning Opportunity events will be posted on Blackboard throughout the quarter!

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.

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Additional extended learning opportunities:

The National Museum of Computing

A museum that brings to life the history and ongoing development of computing for inspiration, education and enjoyment

https://my.matterport.com/show/?m=Vz8kCqGRjQA

Website, 360° views, embedded information points

For Fun...

- **Kern me** https://type.method.ac/ Achieve pleasant and readable text by distributing the space between letters.
 - Interactive game
- Color https://color.method.ac/ A leveled color-matching challenge. Interactive game
- In Vintage TV Ads, a Curious Fountain of Hope (and Cheese)
 - https://www.nytimes.com/2020/06/25/arts/television/youtube-vintage-commercials.html
 - An unlikely source of comfort viewing, YouTube compilations of old commercials have provided the writer a
 - strange kind of optimism when so much else seems broken.
 - Article, 10 min read,
- What Grid System Architecture and the Golden Ratio Do for Web Design
 - https://uxmag.com/articles/what-grid-system-architecture-and-the-golden-ratio-do-for-web-design
 - Used to create a sense of natural balance in design, grids also promote a consistent and logical visual structure
 - Article, 9 min read, 09/28/15

Other Course Information

Office Hours:

See Top of Syllabus for currently scheduled Office Hours Opportunities.

Office hour appointments should be scheduled to avoid any double booking and delays.

ELOs, Field Trips & Midterm Review:

You are required to attend at least 1 Field trip and attend at least 3 ELOs over the quarter. It is also suggested that you attend a Midterm review with your teacher.

Your attendance WILL be part of your grade. When you attend a Field Trip or any approved ELO, please fill out the Google Form and submit it:

https://forms.gle/8pQouPEhdHZ1mUiX9

Project Submissions:

All project materials should be submitted via the Blackboard Submissions portal (or via Dropbox if indicated in

the assignment sheet).

All projects are due 1 HOUR BEFORE the scheduled Class time on the day the project is due.

Class Dropbox:

The class Dropbox is not for storage of personal or in-progress work. The class Dropbox is for assignment turn in and file sharing only. If space becomes limited the Professor will delete any files necessary, without warning. This is to ensure that all students have enough space to turn in assignments without delay.

Late Assignments and Resubmissions:

- All Assignments are due at the start of class.
- Unless otherwise noted, all assignments must be posted to the Dropbox and/or submitted via the Assignment portal.
- No Resubmission of Assignments Allowed.
- Any assignment not turned in by the start of class time is considered late and will receive a -10 Point Deduction for every 24 hours (or portion there of) late.

Professionalism:

- This grading opportunity includes punctuality, courtesy, politeness, commitment to learn, honesty, and overall behavior befitting a professional and righteous individual.
- At all times, students must exercise a respectful and overall positive attitude toward the class, his/her peers and the university's faculty.
- When working in teams, students are expected to deliver their assigned share of the workload. Failure to do so will result in severe penalties.
- Confident presentation skills and industry-standard attire and presentability are part of professionalism.
- Students are independently responsible for delivering assignments and other deliverables within the required deadlines. Furthermore, students are required to maintain and demonstrate evident progress in the course content.
- Students are also responsible for taking measures to back up their digital files; as well as overcoming challenges via personal research, input from classmates or instructor appointments during office hours.
- Students are expected to pay attention and take notes during lectures, as well as work in class exercises and projects during studio time.
- It is the student's responsibility to read their SCAD email account on a daily basis.

Addtional IMPORTANT Information

- The use of cellphones or texting during class is prohibited.
- Backing up of course work is your responsibility. Loss of work may not be used as an excuse under any circumstances.
- A reminder that it is each student's responsibility to access their SCAD email account on a daily basis.

Submission guidelines:

- In summary use the naming convention:
 - Quarter Class ExerciseNumber LastnameFirstname Title
- At the top level will be a folder: F22_SFLM560_EN_LastnameFirstname_Title (Example: F22_SFLM560_A1_MarshallGray_Forced_Perspective)
- Inside will be files W21_V160_EN_LastnameFirstname_Title.extension where EN is the number of the exercise and extension includes py, pdf, and possibly mov/mp4, jpg/png/exr.

Course Materials:

Required Text(s):

The Linux Command Line

WIlliam Shotts

No Starch Press, ISBN-13: 978-1593279523

Create GUI Applications with Python & QT5; 5th Edition, PySide2 version

Martin Fitzpatrick (Self-published)

<u>PySide2 book (5th Edition, 2022) Create GUI Applications with Python & Qt5 — Build modern GUIs with Python (pythonguis.com)</u>

NOTE: You can buy this at Amazon, but I suggest you use his website to get the ePub version with free updates (and 2 versions of the book!)

Recommended Text(s):

Learning Python

Mark Lutz O'Reilly Media, ISBN 10:

Beyond the Basic Stuff with Python

Al Sweigart

No Starch Press. ISBN-13: 978-1593279660

https://inventwithpython.com/beyond/chapter0.html (FREE Online Version)

Required Material(s):

Notebook

External Drive or Thumb Drive, 32 GB Minimum Recommended

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% 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 sessions. 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 SCADnow courses are required to check the online course site regularly and academically engage in the daily work of the course. Students earn attendance in SCADnow online courses through active participation in live class sessions and/or asynchronously by participating in academically related activities on a minimum of two separate days per unit/week.

SCAD faculty monitor and measure attendance for SCADnow online courses by documenting each student's weekly academic engagement. Academic engagement is defined as participating in live class sessions, 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. Absences in excess of 20% result in the student receiving a failing grade for the course.

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 <u>scad.edu</u> 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 of information, contact surveys@scad.eg	departments to inform data-driven en edu.	hancements. For additional