Computer Aided Graphics and Design

EML 2023, Summer 2023

MWF 4th Period – 12:30 PM to 1:45 PM

https://ufl.zoom.us/j/94392118114

Students are to attend all classes, with **camera ON**. Attendance will be taken, and participation will be noted.

Instructor:

Dr. Andrés Rubiano

All class communication through Canvas messages.

Office Hours: Monday and Wednesday: 5:00 PM – 6:00 PM

Additional Office hours: as many as you want. Send me a Canvas message with an "Office Hours" subject and a when2meet link availability, and I'll reply to you with available times.

Teaching Assistants:

- Nicholas Sardinia - nicholassardinia@ufl.edu – Zoom Link: TBD
  - Office Hours: TBD
- Andrew Gonzalez – andrewgonzalez@ufl.edu – Zoom Link: TBD
  - Office Hours: TBD

Course Description

Sketching, descriptive geometry, computer graphics, computer aided drafting and design projects. 3 Credits.

The Southern Association of Colleges and Schools Commission on Colleges provides the federal definition of the credit hour as the equivalent to one hour of in-person instruction and at least two to three hours of out-of-class work per week in a 15-week semester. Source: citt.ufl.edu

Prerequisites

Basic computer knowledge: saving files, renaming files, copying or moving files, differentiating between a zip file and a folder, unzipping zip files, downloading files, opening image files, understanding paths in windows explorer, changing the default program to open a certain file type, uploading files to Canvas, uploading files to OneDrive or other cloud service, taking a screenshot of your Windows screen, using the snipping tool, etc.

First Day Instructions: from your EML 2023 Canvas Course, go to Files, Installation Instructions folder, and follow the instructions in all four PDF files to install and properly set up Acrobat Reader, OBS, SolidWorks, and UF Templates. These must be properly set up during the first day of class. Failure to do so will result in quiz issues or mistakes. You will not get a chance to make up for grades that have been affected by not setting up your software properly.

Class Structure:

Before *every* class meeting, you are to:

- study the one 8-12-minute lecture main video (1-hour worth of lecture content).
- recreate the part, drawing, or assembly used in the video lecture, while recording your work with OBS.
- record your work while completing the previous in-class exercise
- complete the assigned homework assignment (if any) while recording your work with OBS.

Students are to attend all classes. Attendance will be taken, and participation will be noted.

Class meeting times will be used to:

- answer specific questions about lecture videos and classwork.
- expand on the video lecture and add to its contents.
- work on a problem related to the topic covered in the lecture.
- go over supplementary information about SolidWorks, OBS, and templates configuration.
- work on new SolidWorks exercises.
- take quizzes.

Course Assignments:

Homework:

- At least a day before every lecture day, you must watch the condensed lecture video, replicate the work shown in it, and record your work with OBS.
- *In-class exercises* are to be started over at home, and recorded from start to end. This work can be randomly requested for grading.
- When a homework exercise is assigned, students should work on it at home, and once again, record their work.

Any of these three homework activities can be randomly requested for grading during a *quick quiz* in class.

Quizzes:

Pop quizzes will be given during lecture meetings. There are two types of quizzes: *quick quizzes* and *regular quizzes.*

- Quick quizzes will ask for you to upload a file that you must have created beforehand, as part of a class exercise, homework assignment, or completion of a video-lecture part. These quizzes will take 5 minutes or less to complete. Be very organized with how you store and label all the files for this course.
- Regular quizzes will consist of a problem statement. The allotted time will depend on the complexity of the quiz. For these quizzes, you will need provide a submission for the actual quiz, as well as the recording of your work:
    - Quiz submissions will be the part, part drawing, or assembly SolidWorks file that the quiz asks for, or fill in the blank questions with information found in your SolidWorks file; usually distance, mass, volume, or surface area properties.
    - Additionally, starting before you open the quiz on Canvas and until after you submit the quiz, you will record your work with OBS. You will submit this recording to the corresponding *Quiz Recording*. You can upload the recording at any point before 10 PM.

Quiz time will appear limited and quiz problems, challenging, if class exercises and homework assignments are not completed. Make sure to ask any questions you have about covered topics at the beginning of class, before the quiz takes place.

Late submissions.

There will be no late submissions. Any work that is not submitted in time will receive a zero grade. Any technical issues need to be documented (screen recording or phone recording), and they will be used to determine if a make-up opportunity will be offered.

Exams:

Three exams will cover the entirety of the material covered in class. The first exam will cover the creation of parts. The second exam will cover the creation of part drawings and includes creating a part (cumulative). The third exam will cover assemblies, animation, and mechanical mates.

We will not meet for class on the day of an exam. The exams will be taken from home, and they will begin at 12:30 PM. Each exam is 75 minutes long. You will record your work, while working on the exam, and submit your recording to the *Recording* assignment.

A bonus assessment in the form of an exam will take place on the last day of class.

Project:

Groups of three will work together to submit their project on Monday, August 4th, 2023. Communicate with me if any of the members is not responding, not meeting with you, or not working diligently. Do NOT "divvy up" the work for the project. Each one of you is responsible for your project's final product. Keep in mind that at any point throughout the semester, a group member might drop the class. Inform me immediately if that happens.

A description of the project can be found in your Canvas course's files: *Project Instructions.pdf*

Project updates are due June 19th and July 19th.

- The first project update consists of a 3-minute OBS recording explaining: a) the topic that you've chosen, b) the reference material you are using to aid you in the creation of the explanation, and c) quickly showing all of the individual parts you have created for the project.

- The second project update consists of a 2-minute OBS recording quickly showing all part drawings and an overview of the assemblies and sub-assemblies you are using to create the final animation.

Important: work on your project files as the topics are covered in class. Example: if a part of the mechanism you have selected for your project can be created with a revolve feature, create it as soon as we cover revolve features in class.

CSWA Exam:

You will have the chance to take the Certified SolidWorks Associate (CSWA) certification exam between August 9th and August 16th. This exam doesn't count towards the course grade in any way. You can find more about the exam here: https://www.solidworks.com/certifications/mechanical-design-cswa-mechanical-design

Grading: Quizzes (35%), Exams (30%), Project Update 1 (10%), Project Update 2 (10%), Project Update 3 (15%), CSWA Exam (0%)

File Nomenclature: Last Name, First Name – Exercise Name - Details

Examples:

Rubiano, Andres – Quiz 08 – Part

Sardinia, Nicholas – Quiz 06 – Recording

Rubiano, Andres – Quiz 05 – Late Submission

Gonzales, Andrew – Lecture 13 – In Class Exercise

Gonzales, Andrew – Lecture 13 – In Class Exercise Recording

Gonzales, Andrew – Lecture 06 – Homework Assignment

Sardinia, Nicholas – Lecture 05 – Lecture Video Part

Gonzalez, Andrew – Quiz 14 – Pack and Go

Rubiano, Andres – Quiz 16 – Animation Video

Course Content and Schedule:

Date		Day	Content	Lecture(s)	Lecture Links
May	15	M	Isometric and Orthogonal Views in SolidWorks	1	https://youtu.be/Y4gsOdYpiVQ
May	17	W	SolidWorks Interface and Basics/Quiz	2	https://youtu.be/bchu5JNc3YA
May	19	F	Extrusion Feature and Sketches	3	https://youtu.be/OwZMn3kqU2s
May	22	M	Reference Geometry	4	https://youtu.be/rcEnT14cZEg
May	24	W	Relations, Trimming, and Offsetting	5	https://youtu.be/j6r2bLoxhS0
May	26	F	Mirroring Sketch and Features	6	https://youtu.be/ofj8KCvjTl8
May	29	M	Memorial Day Holiday		
May	31	W	Revolve and Arrays	7	https://youtu.be/A-iWmxzJrlQ
June	2	F	2D and 3D Sweeps	8	https://youtu.be/WZjkVcYyOoA
June	5	M	Helix Sweep	9	https://youtu.be/gUzh9vTvwEQ
June	7	W	Loft and Shell	10	https://youtu.be/rzhLnY7JbRw
June	9	F	Exam 1		
June	12	M	Import Pictures, Autotrace, and Combine Features	11	https://youtu.be/XCdU01M7t-k
June	14	W	Equation Driven Curve & Parametric Equations	12	https://youtu.be/3ToFwSf916k
June	16	F	Toolbox Add-In for Machine Components	13	https://youtu.be/d0Cl7tyYLz8
June	19	M	Drawings Basics in SolidWorks	14	https://youtu.be/9qJS2hRL1Sg
			Missing & Redundant Dimensions		No Video Lecture
June	21	W			
			Auxiliary and Section Views	15	https://youtu.be/wskNxGZGqc4
June	23	F			
June	26	M	Summer Break		
June	28	W	Summer Break		
June	30	F	Summer Break		
July	3	M	Break		

			Helper Views for Part Drawings	16	https://youtu.be/tAWlPVKcqoI
July	5	W			
July	7	F	Exam 2		
July	10	M	Assemblies, Mates, and Exploded Views	17	https://youtu.be/iYnt8jxwlIM
July	12	W	Editing Assemblies, Drawings, Motion and BOM	18	https://youtu.be/kUnMhjPQ2H0
July	14	F	Fasteners and Threaded Holes	19	https://youtu.be/Dvc8k7VnnWw
July	17	M	Animation	20	https://youtu.be/QgQ40z_ZI4k
July	19	W	Advance Mates - Gears	21	https://youtu.be/7szznDaQgSk
July	21	F	Gears Activity		No Video Lecture
July	24	M	Advance Mates - Screws	22	https://youtu.be/wCsk2t3momA
July	26	W	Screws Activity		No Video Lecture
July	28	F	Springs Deformation	23	https://youtu.be/hiXWxmqTiAU
July	31	M	"Deformation" Exercise		No Video Lecture
August	2	W	Advance Mates - Cams	24	https://youtu.be/jbcH0OGs0uM
August	4	F	Geometric Dimensioning and Tolerancing	25	No Video Lecture
August	7	M	Review		
August	9	W	Exam 3		
August	11	F	Grades Finalized		

Required Textbooks and Software

SolidWorks 2022, Open Broadcaster Software (OBS), Adobe Acrobat Reader.

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance is required. Make-up quizzes and exams are only offered to students who have missed taking them on time due to personal or medical emergencies. Proof of such emergencies is required in every case. When contacting me for a make-up, include your availability to take a make-up as a when2meet.com link.

Grade Corrections:

Corrections of grades should be submitted to instructor within 5 business days of the grade posting in writing with a concise statement of why you believe there has been an error. Note that the instructor has the final determination in the grade assigned. If a grade change is requested, it may result in a lower grade.

Technical Issues:

In the event of a technical issue (e.g. SolidWorks or OBS freezing or crashing), try to document as best you can what the issue is. Since you are recording everything you do when working on SolidWorks, the OBS recording can be used to support claims of technical issues. If a simple screenshot of an error makes more sense, take a screenshot when the error occurs. If on the other hand, OBS is the one crashing, try to record your screen with your phone to document that OBS is frozen or giving you an error, preventing you from recording your screen.

Other Course Information

Grading Scale: The final grade will be calculated by the following table.

Table 1. Grading Table. *%GE = Percent Grade Earned.*

Percentage Range			Grade Point
93.33% GE	100.00	A	4.00
90.00% GE	93.33	A-	3.67
86.67% GE	90.00	B+	3.33
83.33% GE	86.67	B	3.00
80.00% GE	83.33	B-	2.67
76.67% GE	80.00	C+	2.33
73.33% GE	76.67	C	2.00
70.00% GE	73.33	C-	1.67
66.67% GE	70.00	D+	1.33
63.33% GE	66.67	D	1.00
60.00% GE	63.33	D-	0.67
00.00% GE	60.00	E	0.00

Relation to Program Outcomes (ABET):

Outcome	**Coverage***

1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	High
3) an ability to communicate effectively with a range of audiences	High
4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Low
5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	Low
6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Medium
7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Medium

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: https://registrar.ufl.edu/ferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: https://counseling.ufl.edu, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling; https://career.ufl.edu.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/;https://care.dso.ufl.edu.

On-Line Students Complaints*: https://distance.ufl.edu/state-authorization-status/#student-complaint*.