

Special Topics: Fluids & Energy Engineering With Laboratory & Egypt Virtual Exchange

EML 4930 - Section 24662 (MT67)

Class Periods: M, W, F, Period 3, 9:35 – 10:25am

Location: Florida Gym 0270

Academic Term: Fall 2025

Last Updated 8/18/2025

EML4930 is a dynamic course due to deployment of educational lab kits and virtual exchange with an international partner institution. Modifications to this syllabus may be required during the semester. Any changes to the syllabus will be posted on the course Canvas page & MS Teams site and announced in class.

Instructor:

Name: Matthew J. Traum, Ph.D., F.ΣΕ

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Office Phone Number: (352) 294-6897

Office Hours: Thursdays, 10:40 – 11:59am, MAE-C-103; and by appointment



Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Please contact through the course MS Teams Channel to arrange meetings

- Nicole “Nikki” Kershner, nkershner@ufl.edu, Graduate Assistant – Research
Office Hours: Mondays, 10:40 – 11:30am, Location TBA
- Jackson Sammartino, j.sammartino@ufl.edu, Grader & Graduate Learning Assistant
Office Hours: Thursdays, 10:40 – 11:59am, MAE-C-103
- Chadi Rachid, c.rachid@ufl.edu, Post-Graduate Learning Assistant
Office Hours: Wednesdays: 1:55 - 2:45pm, Location TBA

Course Description

A lab-based learning studio where U.S. and Egyptian students collaborate through a Virtual Exchange using identical educational kits to perform and compare engineering fluid mechanics experiments. Credits: 1

Course Pre-Requisites / Co-Requisites

Instructor consent

Course Objectives

This course introduces students to engineering fluid mechanics concepts through hands-on laboratory experiments using educational kits. By engaging in a Virtual Exchange with peers in Egypt, students will develop cross-cultural collaboration skills while applying theory to practical, real-world fluid dynamics problems.

Materials and Supply Fees

None

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	
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	
3. An ability to communicate effectively with a range of audiences	
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	
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks, Software, and Lab Kits

1. Educational Fluids Laboratory Kits will be provided to enrolled students during the semester to complete hands-on assignments and experiments.

Recommended Materials

1. "Less Boring Lectures" YouTube channel, A. Rubiano [Free To Access]: <https://www.youtube.com/c/LessBoringLectures>
2. C. C. Ngo and K. C. Gramol, "Multimedia Engineering Fluid Mechanics," University of Oklahoma Engineering Media Lab, 2019 [Free OER Access]: <https://www.ecoursesbook.com/cgi-bin/eBook.cgi?topic=fl>

Required Computer

Students must have their own computer whose specifications meet or exceed the capabilities recommended by the University (<https://it.ufl.edu/get-help/student-computer-recommendations/>), required by the College (<https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/>), and required by the MAE Department (<https://mae.ufl.edu/academics/prospective/undergraduate/computer-requirements/>).

Important Dates

None

Attendance Policy, Class Expectations, and Make-Up Policy

It is important to attend class regularly. If you miss a class, you are responsible for acquiring notes or other resources covered. The Teaching Team will endeavor to make all course materials available through the Learning Management System. However, some experiences cannot be replicated asynchronously. Students are held responsible for knowledge of all scheduling and policy announcements made in class. Excused absences must be consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>) and require appropriate documentation and advance communication with the instructor.

Policies on Sources of Truth, Communication Channels, Use of AI, TurnItIn, Laboratory Access, & Assignment Grade Disputes:

1. Online platforms, notably GroupMe, provide venues for course discussion that exclude the instructor and Teaching Team. Discussion platforms beyond UF-sanctioned Learning Management Systems will not be monitored or curated by the instructor. Thus, information propagated through these platforms can be incorrect. It is each student's responsibility to verify information obtained from these external discussion services with reputable reference sources or UF-affiliated subject matter experts. Erroneous information obtained from external discussion platforms used in EGN3353C will be marked incorrect on graded assignments and assessments.

2. The MS Teams General Channel is shared by the whole class and the Teaching Team for information dissemination. Individuals or teams who post comments or files not relevant to class the General Channel will be penalized one letter grade for each infraction.

3. Students taking this course consent to allowing all assignments to be submitted by the instructor on their behalf for textual similarity review to Turnitin.com via the Canvas learning management system for the detection of plagiarism and unattributed AI use. All submitted materials will be added as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

4. Use of Generative AI is accepted and encouraged provided a) it occurs exclusively through UF's NaviGator Chat portal (<https://it.ufl.edu/ai/navigator-chat/>) and b) AI use is clearly identified and attributed in all submissions. AI generated content created outside the UF NaviGator Chat platform and/or that is not clearly identified and attributed is cheating under the UF Honor Code, section (a)2, <https://regulations.ufl.edu/wp-content/uploads/2021/12/4-040-2021-12-06.pdf> :

“(a) Cheating. A Student shall not use or attempt to use unauthorized materials or resources in any academic activity for academic advantage or benefit. Cheating includes but is not limited to:

2. Using any materials or resources, through any medium, which the Faculty has not given express permission to use and that may confer an academic benefit to the Student.”

Unattributed material suspected of being AI-generated will be vetted through a detection algorithm. If this tool deems the material to be AI-generated, a 0 will be given on the suspected assignment.

5. EML4930 Students receive priority access to and use of the MAE-C-010 design lab space from 9:35 to 10:25am on Mondays to set up and run lab kit experiments. Outside these hours, other users including senior design class and UF MAE Design Teams have priority use of the space.

6. If an individual or group has an assignment grading dispute, the issue must first be addressed with the Teaching Team member who did the grading. If individuals/groups can show where grading errors occurred, Teaching Team members will correct grades accordingly. Only after communication with a Teaching Team member fails to resolve a grading dispute may the individual/group bring the dispute to an instructor.

Laboratory Safety:

EML4930 is a laboratory course. While lab kits enable students to conduct experiments remotely, students can access MAE-C-010 during the course's priority access time if they wish to run experiments in an in-person setting. To ensure safety of all participants appropriate attire, personal protective equipment (PPE), and common-sense behavior are always required in the lab. Failure to follow lab safety rules will result in students' immediate removal from the lab and forfeiture of course points at the instructor's discretion.

1. Lab Attire

- No open-toed shoes are permitted in the lab.
- No shorts are permitted in the lab.

2. PPE

- Sanitizing supplies are available in the lab to wipe down desks prior to sitting and at the end of class if needed.
- Eye protection is required in the laboratory for proximity to hands-on activities.

- Respiratory protection is required in the laboratory for proximity to activities producing harmful fumes.
- Ear protection is required in the laboratory for proximity to activities 85 decibels or louder.

3. Behavior

- Disruptive or destructive behavior will not be tolerated.
- No food or drink is allowed in the machine shop, 3D print farm, or metrology areas of the lab.
- Food & drink are allowed at work desks, in conference rooms, at the coffee bar / kitchen area

4. Emergencies

- Inform Teaching Team members immediately of injury or exposure.

Evaluation of Grades

Assignment	Points	Percent
Individual Assignments		
Informed Consent Forms & Media Waiver	1	1.4
IntCRIT & IntComm Pre/Post-VE Surveys	8	11.4
Stevens Initiative Post-VE Survey	4	5.7
Pre/Post Resume Assignments	6	8.6
Virtual Exchange & Lab Reports		
VE Intro Workshop Participation	1	1.4
Icebreaker Participation	1	1.4
Padlet Self Introduction	2	2.9
Padlet World Dam Post	5	7.1
Joint Written Lab Report - Hydrostatic Column	10	14.3
Joint Video Lab Report - Pump Curve	10	14.3
Joint Video Lab Report - Torricelli Fountain	10	14.3
Photo / Screen Capture (3X)	6	8.6
Lab Kit Inventory & Return	6	8.6
Total	70	100

Any changes in evaluation of grades will be posted on the course Canvas page & MS Teams site and announced in class.

Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Grade Definitions

A : Student demonstrated course mastery in all regards and with distinction.

A- : Student performed outstandingly in all regards and is exceptional.

B+ : Student performed with excellence in the course.

B : Student showed high command of course content.

B- : Student has done a commendable job with course content.

C+ : Student demonstrated ample grasp of course content.

C : Student demonstrated adequate grasp of course content.

C- : Student demonstrated fair grasp of course content.

D+ : Student met fair course expectations.

D : Student attained below average expectations.

D- : Student met minimal expectations to pass.

E : Student failed to meet minimal expectations to pass.

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: <https://go.ufl.edu/syllabuspolicies>. Instructor-specific guidelines for courses must accommodate these policies.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

- 1) The email they receive from GatorEvals,
- 2) Their Canvas course menu under GatorEvals, or
- 3) The central portal at <https://my-ufl.bluera.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

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, students are obligated to report any condition that facilitates academic misconduct to appropriate personnel. Please refer questions or concerns to the course instructor.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

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

- Your academic advisor or Undergraduate Coordinator
- HWCoe Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu

Sponsorship Acknowledgement

Educational laboratory kits deployed in this course are supported by the J. Christopher Stevens Virtual Exchange Initiative (JCSVEI). JCSVEI is a U.S. Department of State's Bureau of Educational and Cultural Affairs program administered by the Aspen Institute.



Stevens
Initiative



UF Herbert Wertheim
College of Engineering
UNIVERSITY of FLORIDA

“Nature always tends to act in the simplest way.”

--D. Bernoulli

Course Schedule

Week #	Date	Day	Synchronous Content	Assignment Due
1	22-Aug	F	No Class	
2	25-Aug	M	No Class	
	27-Aug	W	No Class	
	29-Aug	F	No Class	• Entry Resume + AI Score • Informed Consent Forms • Media Waiver • IntCRIT & IntComm Pre-VE Surveys
3	1-Sep	M	No Class	
	3-Sep	W	No Class	
	5-Sep	F	No Class	
4	8-Sep	M	No Class	
	10-Sep	W	No Class	
	12-Sep	F	No Class	
5	15-Sep	M	No Class	
	17-Sep	W	No Class	
	19-Sep	F	No Class	
6	22-Sep	M	No Class	
	24-Sep	W	No Class	
	26-Sep	F	No Class	
7	29-Sep	M	No Class	
	1-Oct	W	No Class Career Showcase	
	3-Oct	F	No Class	
8	6-Oct	M	No Class	
	8-Oct	W	No Class	
	10-Oct	F	No Class	
9	13-Oct	M	No Class	
	13-Oct	M	No Class	
	15-Oct	W	Introduction to Virtual Exchange & Guest Lecture	• VE Intro Attendance
	17-Oct	F	No Class Homecoming	
10	20-Oct	M	Virtual Exchange: Introductions	• VE Icebreaker Participation
	22-Oct	W	No Class	
	24-Oct	F	No Class	• Padlet Self Introduction
11	27-Oct	M	Virtual Exchange: Hydrostatic Standpipe	
	29-Oct	W	No Class	
	31-Oct	F	No Class	• Padlet World Dam Assignment
12	3-Nov	M	Virtual Exchange: Pump Curve	
	5-Nov	W	No Class	
	7-Nov	F	No Class	• Joint Written Lab Report - Hydrostatic Column • Built Lab Kit Screen Capture 1
13	10-Nov	M	Virtual Exchange: Torricelli Fountain	
	12-Nov	W	No Class	
	14-Nov	F	No Class	• Joint Video Lab Report - Pump Curve • Built Lab Kit Screen Capture 2
14	17-Nov	M	Virtual Exchange: Farewells & Survey	
	19-Nov	W	No Class	
	21-Nov	F	No Class	• IntCRIT & IntComm Post-VE Surveys • Joint Video Lab Report - Torricelli Fountain • Built Lab Kit Screen Capture 3 • SI Post-VE Survey
15	24-Nov	M	No Class Thanksgiving	
	26-Nov	W	No Class Thanksgiving	
	28-Nov	F	No Class Thanksgiving	
16	1-Dec	M	No Class	• Exit Resume + AI Score • Lab Kit Inventory & Return
	3-Dec	W	No Class	
	5-Dec	F	No Class Reading Day	