ECO - 526 - Regional Economics: Policy and Practice

2024/25 AY - Undergraduate/Graduate Cross Listing New Course Proposal

General Catalog Information

Undergraduate/Graduate Cross Listing New Course Proposal Form

Read before you begin

FILL IN all fields required marked with an *.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

Requested Action: ***Note*: A complete syllabus is required for all new courses, including travel-study courses offered through DLL or Summer Session. Please be sure that all elements required for a syllabus at the University of Maine are present. We recommend you work closely with the syllabus guidelines found at www.umaine.edu/citl.**

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

New Course Career Offering* ☐ Undergraduate ☑ Graduate

Please attach any required files by navigating to the right side menu and clicking "Files".

Syllabus* ☑ Attached

(*Add SL: before the title of course. Refer to documentation on the criteria for Service-Learning at: www.umaine.edu/upcc)

NEW COURSE:* ☑ New Course

Please complete the Gen Ed section located towards the bottom of this form, if applicable.

REASON FOR NEW COURSE* We are adding a 500-level option (ECO 526) to an existing course offered at the 400-level (ECO 426). This course will provide an additional elective option for students in the Economics and Resource Economics and Policy graduate programs, as well as students in other departments. This course could also be part of a future graduate certificate in the area of Regional Economic Development.

Department* School of Economics

EFFECTIVE SEMESTER:

Semester* Fall

Year* 2025

PROPOSED CATALOG DESCRIPTION:

Course Designator* ECO

Proposed Course #* 526

Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript). * Regional Economics Policy

Long Course Title* Regional Economics: Policy and Practice

Course Description:* This course is about U.S. regional economic development, with an emphasis on policy and practice (i.e., the types of strategies used by regions to promote economic development). Topics include business climate and taxes; industry clusters; human capital; the importance of small businesses; technology-based approaches to economic development; amenities; and aspects of new growth (e.g., residential development, people moving into a region). ECO 426 and 526 cannot both be taken for degree credit.

Prerequisites: ECO 530 or permission.

Corequisites: ECO 530 (I am not sure if I am entering this correctly. The intent is that students have completed or are currently taking ECO 530)

** When determining the number of credit hours for your course please note the Definition of an Undergraduate Student Credit Hour as published in the Undergraduate Catalog:

Definition of an Undergraduate Student Credit Hour: The University of Maine and the University of Maine at Machias acknowledge and adhere to the federal definition of a credit hour with respect to courses offered face-to-face, in hybrid format, and online, as developed in 2010 and published in the *Code of Federal Regulations* (CFR), Title 34, Part 600.02:

[A] credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit [. . .] or the equivalent amount of work over a different amount of time; or

(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution[,] including laboratory work, internships, practica, studio work, and other academic work leading to the awarding of credit hours. Rev. September 2018

Credit Hours:* 3

Does it meet Service-Learning?:* ○ Yes ◉ No

Can this course be repeated for credit? * ○ Yes ◉ No

If YES, total number of credits allowed:

If YES, total number of completions allowed:

Can students enroll multiple times in term? ○ Yes ◉ No

Will this course be delivered using distance technology for over 50% of the class time? ◉ Yes ○ No

(* if you answered yes to either of these questions below, please consult with CITL as soon as possible: https://umaine.edu/citl/instructional-design-2/)

Will this course be a travel study course? (If you answered yes, please contact the Division of Lifelong Learning as soon as possible for approval: https://dll.umaine.edu)* ○ Yes ◉ No

Curriculum Changes *

- ( ) YES, I have submitted curriculum changes documenting how this new course will add to/change the degree requirements for any relevant majors/minors.
- (•) NO, this course will not be added to any lists of requirements, and therefore I have not submitted curriculum changes for it.

If you answered yes, please attach an edited copy of the current catalog with proposed changes or memorandum with proposed changes.

If you answered yes, please include relevant curriculum changes here along with any edits that will be necessary with the addition of this course.

(For information on Course Components Definitions please see: UMS Data Governance Course Components Definitions)

COMPONENTS (type of course/used by Student Records for MaineStreet*

- [ ] Applied Music
- [ ] Clinical
- [ ] Field Experience
- [ ] Independent Study
- [ ] Laboratory
- [x] Lecture
- [ ] Recitation
- [ ] Research
- [ ] Seminar
- [ ] Simulation
- [ ] Studio
- [ ] Thesis
- [ ] Travel Course

When will this course typically be offered *

- [ ] Fall
- [ ] Summer
- [ ] Spring
- [ ] Alternating
- [x] Variable

TEXT(S) PLANNED FOR USE*

Gabe, Todd. *The Pursuit of Economic Development: Growing Good Jobs in U.S. Cities and States*. Palgrave Macmillan, 2017.

COURSE INSTRUCTOR*

Todd Gabe

Are additional resources required for this course?:*

- ( ) YES, please list additional resources required and note how they will be funded or supported.
- (•) NO, the department will not request additional resources for this course, now or in the future, unless the request is accompanied by an explanation of how the increased funding or other support is to be provided.

Additional Resources Required

NA

For any resources needed for this course that the instructor is seeking to secure from, or access through, Fogler Library, has Fogler's Head of Collection

- (•) YES, Fogler has affirmed that it has the digital and/or print resources needed for this course.
- ( ) NO, Fogler has not affirmed that it has the digital and/or print resources needed for this course (or, has confirmed that it cannot supply them).

Head of Collection Services affirmed their availability? *	

If you answered NO above, please plan accordingly as you prepare to deliver your course.

Will offering this course result in overload salary payments (either through the college or DLL) either to the instructor of this course or to anyone else as a result of rearranging teaching assignments? If yes, please explain:*	No
Does the content of this course overlap significantly with other University courses? If so, list the course, explain the overlap, and justify the need for the proposed course.*	Yes, this proposal is to add a 500-level option to ECO 426... so there's overlap in content with ECO 426.
What other department/programs are affected? Have affected departments/programs been consulted? Have any concerns been expressed? Please explain:*	NA

ECO 426/526: Regional Economics: Policy and Practice
Fall Semester 2025

Todd Gabe
School of Economics

September X, 2025, to
December X, 2025

Final Exam Due: Friday December XX at 10 pm

Offered on-line via Brightspace at the University of Maine

Course Description:
This course is about U.S. regional economic development, with an emphasis on policy and practice (i.e., the types of strategies used by regions to promote economic development). Topics include business climate and taxes; industry clusters; human capital; the importance of small businesses; technology-based approaches to economic development; amenities; and aspects of new growth (e.g., residential development, residents moving into a region). ECO 426 and 526 cannot both be taken for degree credit.

Course Learning Outcomes:
After successful completion of the course, students will be able to:
1. Define key terms and strategies related to regional economic development,
2. Use economic reasoning and critical thinking skills to explain the factors that are important to the economic development of regions, and
3. Use the tools of regional economics to analyze data for U.S. states and regions.

Course Information:
Number of Credit Hours: 3
ECO 426 Prerequisites: A grade of C- or better in ECO 220 or ECO 221, or permission
ECO 526 Prerequisites: ECO 530 (completed or concurrent), or permission

Instructor Information:

Office location:	206 Winslow Hall
Office phone:	581-3307
E-mail:	todd.gabe@maine.edu
Office hours:	Tues and Thurs from XX to XX

Special Information for On-Line Course:

Course infrastructure and access: The course will be offered via Brightspace at the University of Maine. At the Brightspace website for this course, you will find the video lectures. You will also find links to the homework assignments and the tests.

Computer literacy requirements: A student will require reliable access to a computer, know how to turn the computer on and reboot when necessary, know how to use the Internet, know how to access Brightspace, know how to send and retrieve email messages, etc. Also, a couple of the homework assignments will use Microsoft Excel.

Hardware, software, and bandwidth requirements: You will need reliable access to a reasonably fast computer (i.e., one purchased or upgraded within the last 5 years), software programs that provide access to the Internet and Brightspace, and an Internet connection that is fast enough to watch YouTube videos and complete the assignments at the Brightspace website.

Contact information for technical support: For technical support or other problems involving Brightspace, please contact umaineonline@maine.edu, or call 1-877-947-4357 (toll-free) or 581-4591 (local).

Importance of time management: Unlike courses that meet in an on-campus lecture hall or laboratory, this on-line course offers you some flexibility on the time of day that you view lectures and complete assignments (provided that they are submitted prior to the due date). For this reason, good time management skills are particularly important for an on-line course.

Text and Readings:

Textbook: Gabe, Todd. *The Pursuit of Economic Development: Growing Good Jobs in U.S. Cities and States*. Palgrave Macmillan, 2017.

This book is available for purchase at the UMaine bookstore and on-line vendors such as Amazon.com. In addition, the University of Maine has a "downloadable" version of this book that is available for free.

Additional readings: Along with chapters from the textbook, the course outline and schedule (see below) list journal articles and other readings that are related to the course content. These readings, which are available at the Brightspace site for the course, are indicated in the course outline and schedule with a "double asterisk" (i.e., **). Students enrolled in ECO 426 are required to write essays on ten of these readings; students enrolled in ECO 526 are required to write essays on 20 of these readings. More information about these essays is provided below.

Evaluation of Work and Grading:

Grading: The following weights are used to determine the course grade for ECO 426.

Video quizzes	20 percent
Homework assignments	20 percent
Essays—Responses to assigned readings	20 percent
Midterm test	20 percent
Final exam	20 percent

The following weights are used to determine the course grade for ECO 526.

Video quizzes	10 percent
Homework assignments	10 percent
Essays—Responses to assigned readings	10 percent
Project and presentation 1	15 percent
Project and presentation 2	15 percent
Midterm test	20 percent
Final exam	20 percent

Final grades will be assigned as follows: A (93 to 100 percent); A- (90-92.9); B+ (87-89.9); B (82-86.9); B- (80-81.9); C+ (77-79.9); C (72-76.9); C- (70-71.9); D+ (67-69.9); D (62-66.9); D- (60-61.9); F (less than 60).

Video quizzes: 11 of the video lectures have quizzes. When calculating your grade in the class, I will "drop" the lowest video quiz score. **The video quizzes are due at 10 pm on Friday December XX, 20XX**.

Homework assignments: There are five homework assignments, which typically involve writing a short essay and/or conducing data analysis using a spreadsheet and concepts covered in the video lectures. When calculating your grade in the class, I will "drop" the lowest homework score. You will submit the homework assignments via the Brightspace site for the course. **The homework assignments have firm due dates. The due dates are posted on the assignments**.

Essays—Responses to assigned readings: One of your primary responsibilities in this class is to keep up with the course material. To provide an added incentive, you will be required to submit short (e.g., about one full page, single-spaced) essays that discuss the main points of the readings. These do not have to be highly polished papers, but they should be reasonably free of grammatical mistakes and misspelled words.

You will be able to receive credit for essays covering the articles/papers in the course outline and schedule (see below) that are indicated with a double asterisk (**). There are 28 articles and papers that qualify for these assignments; this means that you will not need to submit an essay for every reading. Students enrolled in ECO 426 are required to write essays on ten of these readings; students enrolled in ECO 526 are required to write essays on 20 of these readings.

You will submit the responses to assigned readings via the Brightspace site for the course. **The essays have firm due dates. The due dates are posted on the assignments**. The essays will be graded on a "pass / no pass" basis. A "passing" essay is scored as a 100 percent.

Projects and presentations: Students enrolled in ECO 526 are required to complete two projects (with presentations). The first project involves regression analysis (using methods from ECO 530) on a topic (and using data) provided by the course instructor. The second project involves regression analysis on a topic, related to the course material, that you select. The results of your analysis will be submitted as a short paper (3 to 5 pages) and as a 10- to 15-minute video presentation, which will be available to other students in the course. **The projects and presentations have firm due dates**. **The due dates are posted on the assignments**.

Midterm test and final exam: The midterm test and final exam will test your knowledge of the topics covered in class and the required readings (i.e., the book). You will complete and submit the midterm test and final exam via the Brightspace site for the course. **The midterm test and final exam have firm due dates. The due dates are posted on the assignments**.

Academic Honesty Statement—Official UMaine Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, or generated by software or systems without the explicit approval of the instructor, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University. Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314 (***Date Issued:** September 1, 2020): https://www.maine.edu/board-of-trustees/policy-manual/section-314/

Course Schedule Disclaimer (Disruption Clause)—Official UMaine Statement: In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Observance of Religious Holidays/Events—Official UMaine Statement: The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At

the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Students Accessibility Services Statement—Official UMaine Statement: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, located at the Center for Accessibility and Volunteer Engagement at the UCU, 139 Rangeley Rd, um.sas@maine.edu, 207.581.2319, as early as possible in the term. Students may begin the accommodation process by submitting an accommodation request form online and uploading documentation at https://umaine-accommodate.symplicity.com/public_accommodation/. Once students meet with SAS and eligibility has been determined, students submit an online request with SAS each semester to activate their approved accommodations. SAS creates an accessibility letter each semester which informs faculty of potential course access and approved reasonable accommodations; the letter is sent directly to the course instructor. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (Todd Gabe) privately as soon as possible.

Sexual Discrimination Reporting—Official UMaine Statement: The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:
For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Northern Light Primary Care, University of Maine: at 207-581-4000**. *Confidential Resource Advisor: 207-571-5372 (call or text). Or see the Confidential Resource Advisor website for a complete list of services and resources (open in a new window).*
For *confidential resources off campus*: **Rape Response Services:** 1-800-871-7741 or **Partners for Peace**: 1-800-863-9909.
Other resources: The resources listed below can offer support but may have to report the incident to others who can help:
For *support services on campus*: **Title IX Student Services: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the Title IX Student Services website for a complete list of services (open in a new window) . Also, Student Wellness Resource Center (opens in a new window).

Use of Artificial Intelligence (AI)—UMaine Recommended Statement: After completing an assignment, but prior to submitting it, students may use generative AI services to check grammar, code, the clarity of their presentation, and style. No citation for this use is required.

Course Outline and Schedule

1 Introduction (September X to X)

Required reading:
Chapter 1—The Pursuit of Economic Development

Lectures:
Watch videos in the section 1 folder

Additional reading(s):
**Gabe T, Abel J, Florida, R (2019) Can workers in low-end occupations climb the job ladder? Economic Development Quarterly 33: 92-106. (Essay 1: due at 10 pm on September X)

Homework Assignment 1:
Empirical Evidence about Convergence (due at 10 pm on September X)

2 Business Climate (September X to X)

Required reading:
Chapter 2—The Pursuit of Economic Development

Lectures:
Watch videos in the section 2 folder

Additional reading(s):
**Kolko J, Neumark D, Cuellar Mejia M (2013) What do business climate indexes teach us about state policy and economic growth? Journal of Regional Science 53:220-255. (Essay 2: due at 10 pm on September X)

**Gabe T, Kraybill D (2002) The effect of state economic development incentives on employment growth of establishments. Journal of Regional Science 42:703-730. (Essay 3: due at 10 pm on September X)

Project and presentation 1:
Instructor will post assignment and data set on September X.

3 Industry Clusters (September X to X)

Required reading:
Chapter 3—The Pursuit of Economic Development

Lectures:
Watch videos in the section 3 folder

Additional reading(s):

**Markusen A (1996) Sticky places in slippery space: a typology of industrial districts. Economic Geography 72:293-313. (Essay 4: due at 10 pm on September X)

**Porter M (2000) Location, competition, and economic development: local clusters in a global economy. Economic Development Quarterly 14:15-34. (Essay 5: due at 10 pm on September X)

**Gabe T (2003) Local industry agglomeration and new business activity. Growth and Change 34:17-39. (Essay 6: due at 10 pm on September X)

**Barkley D, Henry M (1997) Rural industrial development: to cluster or not to cluster? Review of Agricultural Economics 19:308-325. (Essay 7: due at 10 pm on September X)

4 Agglomeration and Location Quotients (September X to October X)

Lectures:

Watch videos in the section 4 folder

Additional reading(s):

**Pominova M, Gabe T (2023) Population size and the job matching of college graduates. Applied Economics Letters, 30:2994-2997. (Essay 8: due at 10 pm on October X)

**Pominova M, Gabe T, Crawley A (2022) The stability of location quotients. Review of Regional Studies 52:296-320. (Essay 9: due at 10 pm on October X)

Homework Assignment 2:

Calculating Location Quotients (due at 10 pm on October X)

5 Human Capital (October X to X)

Required reading:

Chapter 4—*The Pursuit of Economic Development*

Lectures:

Watch videos in the section 5 folder

Additional reading(s):

**Abel J, Dey I, Gabe T (2012) Productivity and the density of human capital. Journal of Regional Science 52:562-586. (Essay 10: due at 10 pm on October X)

**Gabe T (2009) Knowledge and earnings. Journal of Regional Science 49:439-457. (Essay 11: due at 10 pm on October X)

**Gabe T, Abel J (2016) Shared knowledge and the coagglomeration of occupations. Regional Studies 50:1360-1373. (Essay 12: due at 10 pm on October X)

**Gabe T, Abel J (2011) Agglomeration of knowledge. Urban Studies 48:1353-1371. (Essay 13: due at 10 pm on October X)

**Gabe T, Abel J (2012) Specialized knowledge and the geographic concentration of occupations. Journal of Economic Geography 12:435-453. (Essay 14: due at 10 pm on October X)

Project and presentation 1:

Paper and presentation due at 10 pm on October X.

6 Shift-Share Analysis (October X to X)

Lectures:

Watch videos in the section 6 folder

Additional reading(s):

**Hoppes B (1997) Shift-share analysis for regional health care policy. Journal of Regional Analysis and Policy 27:35-45. (Essay 15: due at 10 pm on October X)

**Gabe T (2006) Growth of creative occupations in U.S. metropolitan areas: a shift-share analysis. Growth and Change 37:396-415. (Essay 16: due at 10 pm on October X)

**Gabe T (2020) "Maine Employment Change during the Early Months of the COVID-19 Pandemic: A Shift-Share Analysis." School of Economics, University of Maine, Staff Paper 640. (Essay 17: due at 10 pm on October X)

Homework Assignment 3:

Calculating Shift-Share Coefficients (due at 10 pm on October X)

7 Midterm Test

The midterm test is due at 10 pm on October X.

8 Small Businesses (October X to November X)

Required reading:
Chapter 5—*The Pursuit of Economic Development*

Lectures:
Watch videos in the section 8 folder

Additional reading(s):
**Birch D (1981) Who creates jobs? Public Interest 65:3-14. (Essay 18: due at 10 pm on November X)

**Davis S, Haltiwanger J, Schuh S (1996) Small business and job creation: dissecting the myth and reassessing the facts. Small Business Economics 8:297-315. (Essay 19: due at 10 pm on November X)

**Edmiston K (2007) The role of small and large businesses in economic development. Economic Review (Second Quarter):73-97. (Essay 20: due at 10 pm on November X)

Project and presentation 2:
Instructor will post assignment on November X.

9 High Technology (November X to X)

Required reading:
Chapter 6—*The Pursuit of Economic Development*

Lectures:
Watch videos in the section 9 folder

Additional reading(s):
**Malecki E (1984) High technology and local economic development. Journal of the American Planning Association 50:262-269. (Essay 21: due at 10 pm on November X)

Project and presentation 2:
Project idea and link to data set due at 10 pm on November X.

10 Retail Trade Area Analysis (November X to X)

Lectures:
Watch videos in the section 10 folder

Additional reading(s):
**McConnon J, Morgan G "Analyzing the economic health of a community's retail sector" Unpublished Manuscript. (Essay 22: due at 10 pm on November X)

**Gabe T, Silva B (2011) "Retail and service sector analysis of Orono, Maine," Report prepared through the University of Maine, Knowledge Transfer Alliance (KTA) for the Town of Orono. (Essay 23: due at 10 pm on November X)

Homework Assignment 4:
Calculating Trade Area Data (due at 10 pm on November X)

11 Amenities (November X to X)

Required reading:
Chapter 7—*The Pursuit of Economic Development*

Lectures:
Watch videos in the section 11 folder

Additional reading(s):
**Deller S, Tsai TH, Marcouiller D, English D (2001) The role of amenities and quality of life in rural economic growth. American Journal of Agricultural Economics 83:352-365. (Essay 24: due at 10 pm on November X)

**Gottlieb P (1994) Amenities as an economic development tool: is there enough evidence? Economic Development Quarterly 8:270-285. (Essay 25: due at 10 pm on November X)

12 New Stuff (December X to X)

Required reading:
Chapter 8—*The Pursuit of Economic Development*

Lectures:
Watch videos in the section 12 folder

Additional reading(s):
**Flynn P (1994) Technology life cycles and state economic development strategies. New England Economic Review, May/June. (Essay 26: due at 10 pm on December X)

**Breece J, Mills G, Gabe T (2015) The economic implications of Maine's changing age structure. Maine Policy Review 24:13-22. (Essay 27: due at 10 pm on December X)

**Gabe T, Florida R (2013) Effects of the housing boom and bust on U.S. metro employment. Growth and Change 44:391-414. (Essay 28: due at 10 pm on December X)

Project and presentation 2:
Paper and presentation due at 10 pm on December X.

13 The Pursuit of Economic Development (December X to X)

Required reading:
Chapter 9—*The Pursuit of Economic Development*

Lectures:
Watch videos in the section 13 folder

Homework Assignment 5:
An Elevator Pitch about the Keys to Economic Development (due at 10 pm on December X)

14 Final Exam

The final exam is due at 10 pm on Friday December X.

MBA - 695 - MBA Internship

Graduate Course Modification Form - 2024/25 AY

General Catalog Information

Graduate Course Modification Form

Read before you begin

FILL IN all fields required marked with an * after importing data.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

*Faculty who are converting a course for online delivery, or making substantive changes to an existing course delivered online, are strongly encouraged to work with the Center for Innovation in Teaching and Learning (CITL) on those modifications: https://umaine.edu/citl/instructional-design-2/

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the **3rd of each month.** Please refer to the Graduate School website for the Curriculum Committee meetings schedule as well as instructions on completing this form. [https://umaine.edu/graduate/facultystaff-resources/curriculum-committee/]

REASON FOR COURSE MODIFICATION:* The MBA Internship course, MBA 695, currently has a 1, 2, and 3 credit option. The Graduate School of Business would like to add a zero-credit option for this course.

MODIFICATION:*
- ☐ Designator Change
- ☑ Credit Change
- ☐ Cross Listing
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Addition of Electronic Learning Component*
- ☐ Conversion of an existing on-site Course to an online Course*

Department* Graduate MBA Program

EFFECTIVE SEMESTER:

EFFECTIVE SEMESTER:

Semester* Summer

Year* 2025

CATALOG DESCRIPTION:

Current Course Designator* MBA

Current Course #* 695

Proposed Course Designator

Proposed Course #

If the Course will be cross listed, please identify below what the current Undergraduate or Gradute Course Number is and what the proposed Graduate Cross Listing Course Number will be.

Current Undergraduate or Graduate Course Number

Proposed Graduate Cross Listing Course Number

Current Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters).* MBA Internship

Proposed New Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters)

Current Long Course Title* MBA Internship

Proposed Long Course Title

Current Course Description*	Field experience in business relevant to the student's educational development and career goals. (Neither past work experience or field experience courses taken at other campuses or universities will be permitted as substitutes.) Only open to MBA students. Course may be repeated, but student may not earn more than 3 internship credits.
Proposed Course Description	
Current Prerequisite(s)	Permission of the Dean of the Graduate School of Business or designated appointee.
Proposed Prerequisite(s)	
Current Corequisite(s)	
Proposed Corequisite(s)	

Definition of Credit Hours: Go to https://umaine.edu/graduate/students/progress/enroll/#define-credit-hour for the definition of a credit hour at UMaine.

Current Credit Hours:*	1-3
Proposed Credit Change	0-3
If the course designator or course number is being changed, please list any courses for which this course is a prerequisite:	
When will this course typically be offered	☑ Fall ☑ Summer ☑ Spring ☐ Alternating ☐ Variable
Can this course be repeated for credit?	◉ Yes ○ No
If YES, total number of credits allowed:	3
If YES, total number of completions allowed:	
Can students enroll multiple times in term?	○ Yes ◉ No

Instruction Mode: Select the mode of instruction for this course. Review the instruction modes documentation provided by UMS. https://gojira.its.maine.edu/confluence/display/DARTS/Instruction+Modes+Documentation.

- [ ] Distance Synchronous Learning
- [ ] Hybrid/Blended
- [ ] Hyflex
- [x] In-Person
- [x] Online (Asynchronous)

COURSE RESOURCES

Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?

- ( ) Yes
- (•) No

If additional resources are needed, outline them below:

Will instructional cost for this course proposal involve financial support from the Division of Life Long learning?*

- [ ] Yes
- [x] No

NUR - 520 - Family Nurse Practitioner Management of Neonate to Adolescent

Graduate Course Modification Form - 2024/25 AY

General Catalog Information

Graduate Course Modification Form

Read before you begin

FILL IN all fields required marked with an * after importing data.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

*Faculty who are converting a course for online delivery, or making substantive changes to an existing course delivered online, are strongly encouraged to work with the Center for Innovation in Teaching and Learning (CITL) on those modifications: https://umaine.edu/citl/instructional-design-2/

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the **3rd of each month.** Please refer to the Graduate School website for the Curriculum Committee meetings schedule as well as instructions on completing this form. [https://umaine.edu/graduate/facultystaff-resources/curriculum-committee/]

REASON FOR COURSE MODIFICATION:* Course is listed as an in-person course, but is a hyperflex course due to distance student attendance.

MODIFICATION:*
- ☐ Designator Change
- ☐ Credit Change
- ☐ Cross Listing
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Addition of Electronic Learning Component*
- ☑ Conversion of an existing on-site Course to an online Course*

Department* School of Nursing

EFFECTIVE SEMESTER:

Semester* Fall

Year* 2025

CATALOG DESCRIPTION:

Current Course Designator* NUR

Current Course #* 520

Proposed Course Designator n/a

Proposed Course # n/a

If the Course will be cross listed, please identify below what the current Undergraduate or Gradute Course Number is and what the proposed Graduate Cross Listing Course Number will be.

Current Undergraduate or Graduate Course Number

Proposed Graduate Cross Listing Course Number

Current Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters).* FNP Neonate to Adolescent

Proposed New Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters)

Current Long Course Title* Family Nurse Practitioner Management of Neonate to Adolescent

Proposed Long Course Title No change

Current Course Description* No change

Proposed Course Description	n/a
Current Prerequisite(s)	NUR 503 and NUR 507 and permission
Proposed Prerequisite(s)	n/a
Current Corequisite(s)	n/a
Proposed Corequisite(s)	n/a

Definition of Credit Hours: Go to https://umaine.edu/graduate/students/progress/enroll/#define-credit-hour for the definition of a credit hour at UMaine.

Current Credit Hours:*	3
Proposed Credit Change	n/a
If the course designator or course number is being changed, please list any courses for which this course is a prerequisite:	
When will this course typically be offered	☐ Fall ☐ Summer ☑ Spring ☐ Alternating ☐ Variable
Can this course be repeated for credit?	○ Yes ◉ No
If YES, total number of credits allowed:	**If YES, total number of completions allowed:**
Can students enroll multiple times in term?	○ Yes ◉ No
Instruction Mode: Select the mode of instruction for this course. Review the instruction modes documentation provided by UMS. https://gojira.its.maine.edu/confluence/display/DARTS/Instruction+Modes+Documentation.	☐ Distance Synchronous Learning ☐ Hybrid/Blended ☑ Hyflex ☐ In-Person ☐ Online (Asynchronous)

COURSE RESOURCES

Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?

- ( ) Yes
- (•) No

If additional resources are needed, outline them below:

Will instructional cost for this course proposal involve financial support from the Division of Life Long learning?*

- [ ] Yes
- [x] No

ECE - 528 - Smart Grid and Enabling Technologies

2024/25 AY - Undergraduate/Graduate Cross Listing New Course Proposal

General Catalog Information

Undergraduate/Graduate Cross Listing New Course Proposal Form

Read before you begin

FILL IN all fields required marked with an *.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

Requested Action: ***Note*: A complete syllabus is required for all new courses, including travel-study courses offered through DLL or Summer Session. Please be sure that all elements required for a syllabus at the University of Maine are present. We recommend you work closely with the syllabus guidelines found at www.umaine.edu/citl.**

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

New Course Career Offering* ☐ Undergraduate ☑ Graduate

Please attach any required files by navigating to the right side menu and clicking "Files".

Syllabus* ☑ Attached

(*Add SL: before the title of course. Refer to documentation on the criteria for Service-Learning at: www.umaine.edu/upcc)

NEW COURSE:* ☑ New Course

Please complete the Gen Ed section located towards the bottom of this form, if applicable.

REASON FOR NEW This course has been offered as a multi-listing ECE 428/528 since it will no longer be offered

COURSE*	This course has been offered multiple times as ECE 498/598 so it will now be offered as a permanent course listing.

Department*	Electrical and Computing

EFFECTIVE SEMESTER:

Semester*	Fall	**Year***	2025

PROPOSED CATALOG DESCRIPTION:

Course Designator*	ECE	**Proposed Course #***	528

Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript). *	Smart Grd & Enab. Tech
Long Course Title*	Smart Grid and Enabling Technologies
Course Description:*	This course will present the foundations of smart grid, the technology that enables smart grids, the current state of the industry, and future trends in smart energy. The course will include an introduction to smart grid architecture, including traditional grids, the fundamentals of electric power, definitions and classifications of smart grids, and the components of smart grid technology, data analytics and AI in smart grids, opportunities and challenges from grid integration of renewable energy sources and a practical discussion of the applications of power electronics in the smart grid. ECE 528 and ECE 428 cannot both be taken for degree credits.
Prerequisites:	ECE 427 or permission
Corequisites:	

** When determining the number of credit hours for your course please note the Definition of an Undergraduate Student Credit Hour as published in the Undergraduate Catalog:

Definition of an Undergraduate Student Credit Hour: The University of Maine and the University of Maine at Machias acknowledge and adhere to the federal definition of a credit hour with respect to courses offered face-to-face, in hybrid format, and online, as developed in 2010 and published in the *Code of Federal Regulations* (CFR), Title 34, Part 600.02:

[A] credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit [. . .] or the equivalent amount of work over a different amount of time; or

(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution[,] including laboratory work, internships, practica, studio work, and other academic work leading to the awarding of credit hours. Rev. September 2018

Credit Hours:*	3
Does it meet Service-Learning?:*	○ Yes ◉ No
Can this course be repeated for credit? *	○ Yes ◉ No
If YES, total number of credits allowed:	
If YES, total number of completions allowed:	
Can students enroll multiple times in term?	○ Yes ◉ No
Will this course be delivered using distance technology for over 50% of the class time?	○ Yes ◉ No

(* if you answered yes to either of these questions below, please consult with CITL as soon as possible: https://umaine.edu/citl/instructional-design-2/)

Will this course be a travel study course? (If you answered yes, please contact the Division of Lifelong Learning as soon as possible for approval: https://dll.umaine.edu)*	○ Yes ◉ No

Curriculum Changes *	(•) YES, I have submitted curriculum changes documenting how this new course will add to/change the degree requirements for any relevant majors/minors. ( ) NO, this course will not be added to any lists of requirements, and therefore I have not submitted curriculum changes for it.

If you answered yes, please attach an edited copy of the current catalog with proposed changes or memorandum with proposed changes.

If you answered yes, please include relevant curriculum changes here along with any edits that will be necessary with the addition of this course.	See attached.

(For information on Course Components Definitions please see: UMS Data Governance Course Components Definitions)

COMPONENTS (type of course/used by Student Records for MaineStreet*	☐ Applied Music ☐ Clinical ☐ Field Experience ☐ Independent Study ☐ Laboratory ☑ Lecture ☐ Recitation ☐ Research ☐ Seminar ☐ Simulation ☐ Studio ☐ Thesis ☐ Travel Course
When will this course typically be offered *	☑ Fall ☐ Summer ☐ Spring ☐ Alternating ☐ Variable
TEXT(S) PLANNED FOR USE*	***Smart Grid and Enabling Technologies***, Shady S. Refaat, Omar Ellabban, Sertac Bayhan, Haitham Abu-Rub, Dr. Frede Blaabjerg, Miroslav M. Begovic, ISBN: 978-1-119-42231-0, August 2021, Wiley-IEEE Press
COURSE INSTRUCTOR*	Hepeng Li, Assistant Professor 2+2
Are additional resources required for this course?:*	( ) YES, please list additional resources required and note how they will be funded or supported. (•) NO, the department will not request additional resources for this course, now or in the future, unless the request is accompanied by an explanation of how the increased funding or other support is to be provided.
Additional Resources Required	
For any resources needed for this course that the instructor is seeking to secure from, or access through, Fogler Library, has Fogler's Head of Collection Services affirmed	( ) YES, Fogler has affirmed that it has the digital and/or print resources needed for this course. (•) NO, Fogler has not affirmed that it has the digital and/or print resources needed for this course (or, has confirmed that it cannot supply them).

their availability? *	

If you answered NO above, please plan accordingly as you prepare to deliver your course.

Will offering this course result in overload salary payments (either through the college or DLL) either to the instructor of this course or to anyone else as a result of rearranging teaching assignments? If yes, please explain:*	No
Does the content of this course overlap significantly with other University courses? If so, list the course, explain the overlap, and justify the need for the proposed course.*	No
What other department/programs are affected? Have affected departments/programs been consulted? Have any concerns been expressed? Please explain:*	No

ECE 428/528 Smart Grid and Enabling Technologies

Course Information

Course Description: This course will present the foundations of smart grid, the technology that enables smart grids, the current state of the industry, and future trends in smart energy. The course will include an introduction to smart grid architecture, including traditional grids, the fundamentals of electric power, definitions and classifications of smart grids, and the components of smart grid technology, data analytics and AI in smart grids, opportunities and challenges from grid integration of renewable energy sources and a practical discussion of the applications of power electronics in the smart grid.

ECE 528 and ECE 428 cannot both be taken for degree credits.

Number of credit hours: 3

Course details about location, day, and time: TBD

Prerequisites: ECE 427 or permission

Course Delivery Method

Mode of Instruction

In-person

Time Options

Synchronous

Digital Services, Hardware, Software

Learning Management System: Brightspace

Faculty Information

Name & Title: Hepeng Li, Assistant Professor
Phone numbers: 207-581-3328
E-mail address: hepeng.li@maine.edu
Office address: Barrows Hall 205
Office hours: TBD

Instructional Materials and Methods

Required Textbook:

Smart Grid and Enabling Technologies, Shady S. Refaat, Omar Ellabban, Sertac Bayhan, Haitham Abu-Rub, Dr. Frede Blaabjerg, Miroslav M. Begovic, ISBN: 978-1-119-42231-0, August 2021, Wiley-IEEE Press

Additional Resources: https://smartgrid.ieee.org/

Course Goals:

1. Understand the architecture and technology of Smart Grids and how they differ from traditional electric grids.
2. Recognize the challenges and opportunities in integrating renewable energy sources like solar and wind into the power grid.
3. Learn about enabling technologies such as energy storage systems, power electronics, and microgrids that support the Smart Grid.
4. Gain an understanding of data analytics and AI's role in Smart Grid management for optimizing grid performance and managing demand.
5. Be aware of current industry trends and future developments in Smart Grid technology, including business models, policies, and regulatory frameworks.
6. Develop professional skills in collaboration, communication, and problem-solving through group projects and discussions.
7. Utilize AI tools and other technologies in the context of Smart Grid design and analysis.

Instructional Objectives:

1. Through homework, students will explain the architecture and key components that make up the smart grid.
2. Through case studies, discussions, and research assignments, students will analyze the latest developments in Smart Grid technology, including evolving business models, policies, and regulations that shape the future of energy systems.
3. By writing reports and making presentations, students will identify the challenges and opportunities of integrating renewable energy sources into the grid.
4. Through assignments and/or projects, students will design solar power systems, study wind turbines, implement MPPT algorithms, and evaluate these renewable technologies.
5. Using Matlab/Simulink, students will complete simulations and projects that demonstrate how these technologies work in practice.
6. Through lab exercises, students will use AI tools to model energy demand and optimize grid performance.
7. Students will deliver presentations and reports on their projects, demonstrating their ability to communicate technical ideas effectively.

Student Learning Outcomes

By the end of this course, students will be able to

Undergraduate (ECE 428):

1. Analyze foundational smart grid concepts, including architecture, technology, and renewable energy integration.
2. Explain the key components of Smart Grid systems and describe how they differ from traditional grid architectures.
3. Demonstrate proficiency in the basic design and operational principles of solar and wind energy systems, including MPPT algorithms.
4. Evaluate the role of power electronics and energy storage technologies in supporting Smart Grid functionality and enhancing grid resilience.
5. Examine the role of related enabling technologies, specifically AI and machine learning in smart grid.
6. Present technical findings clearly and professionally, using appropriate methods to communicate solutions to complex engineering challenges.

Graduate (ECE 528):

1. Critically evaluate smart grid architectures and components to understand how

technological advancements enhance grid reliability, efficiency, and resilience.
2. Design, simulate, and analyze advanced renewable energy systems with optimized MPPT algorithms.
3. Develop control strategies for smart inverter and energy storage solutions to facilitate distributed energy resource integration.
4. Analyze electricity market structures and pricing mechanisms to evaluate their impact on smart grid operations.
5. Apply AI and machine learning tools for grid optimization
6. Apply advanced technologies to real-world challenges, demonstrating effective project management and collaboration.
7. Produce and present reports and presentations on independent research topics, communicating complex engineering solutions clearly to diverse audiences.

Grading and Course Expectations

The final course grade will be determined by the following components:

Undergraduate (ECE 428):
- Homework/Class Assignments (40%)
- Class Participation (10%)
- Midterm Exam (20%)
- Final Exam (30%)

Graduate (ECE 528):
- Homework and Class Assignments: (20%)
- Project (20%)
- Participation and Group Collaboration (5%)
- Energy in the News: (5%)
- Midterm Exam: (20%)
- Final Exam/Final Project: (30%)

Final letter grades for the course will be assigned based on the following scale:

Grading Scale:

Percentage Range	Letter Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
Below 60	F

Course Expectations:

- **Professionalism**: Students are expected to demonstrate professionalism in their coursework and interactions. This includes timely submission of assignments, initiative in learning, and respectful communication with peers and instructors.
- **Collaboration**: While students are encouraged to discuss assignments with peers, all submitted work must be the individual's own. Plagiarism or copying will result in a negative grade for both the provider and the copier.
- **Ethical Use of AI Tools**: Students are permitted to use generative AI tools for

certain assignments, but all AI-generated content must be properly cited. Misuse of AI will be considered academic misconduct.

Engagement Beyond the Classroom:

Students are encouraged to stay engaged with the material beyond class discussions. This includes keeping up with industry news, attending related seminars or field trips, and exploring applications of Smart Grid technology in current events.

Course Schedule:

Week	Topics	Assignments	Due Dates
Week 1	Introduction to Smart Grids	Homework 1	Sun 11:59pm
Week 2	Power System Operation		
Week 3	Energy Resources	Energy in the News	Next Tue 11:59pm
Week 4	Solar Energy: The Sun		
Week 5	Solar Energy Systems I	Homework 2	Sun 11:59pm
Week 6	Solar Energy Systems II		
Week 7	Midterm Exam		
Week 8	Smart Inverters	Project 1	Next Sun 11:59pm
Week 9	Wind Energy Systems		
Week 10	Microgrids	Homework 3	Sun 11:59pm
Week 11	Demand Response		
Week 12	AI in Smart Grids	Project 2	Next Sun 11:59pm
Week 13	Simulation Tools		
Week 14	Business Models		
Week 15	Final Exam		

Course Policies

Attendance and Participation: Attendance is expected for every class session. Two or more unexcused absences may result in a reduction of one letter grade. Active participation in class discussions and group projects is essential to success in this course.

Missed homework assignments will receive a 0 grade. No late submissions will be accepted.

Late or Incomplete Assignments:

- **Late Submissions**: No late submissions will be accepted unless there is a documented emergency or prior arrangement with the instructor. Missed assignments will receive a grade of zero.
- **Incomplete Assignments**: Incomplete assignments will be graded based on the work submitted by the deadline. If extenuating circumstances arise, please discuss them with me in advance.

Make-Up Work and Exams:

- **Make-Up Assignments**: Make-up work will only be permitted in cases of documented illness or emergencies. Students must contact me as soon as possible to arrange a timeline for completion.
- **Make-Up Exams**: Make-up exams will only be given under extraordinary circumstances (e.g., medical emergencies) and must be requested prior to the exam date when possible. Documentation will be required.
- **Retake Exams**: Retake exams are not allowed. All exams must be taken on the scheduled date, unless a valid reason for absence is provided and accepted.

Classroom Civility and Respect:

- **Civility and Respect**: A respectful and collaborative classroom environment is essential for learning. Disruptive behavior, inappropriate language, or disrespectful conduct toward others will not be tolerated. Every student is encouraged to participate in discussions and activities in a professional and courteous manner.
- **Professional Conduct**: All students are expected to demonstrate professionalism in their work and interactions, both in the classroom and when communicating electronically with instructors and peers.

Inclusive Language and Participation:

- **Inclusive Language**: Students are encouraged to use inclusive, non-sexist language in all communications, both spoken and written. This means avoiding assumptions about gender, race, or other identities, and using language that respects diversity and inclusion.
- **Diversity and Inclusion**: Our classroom is a space that welcomes diverse perspectives and experiences. Students are encouraged to engage in discussions with an open mind, and to contribute to an inclusive learning environment where everyone feels valued and heard.

Campus Policies

Academic Honesty Statement:

Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, or generated by software or systems without the explicit approval of the instructor, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314.

Students Accessibility Services Statement

If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 139 Rangeley Rd, um.sas@maine.edu, 581.2319, as early as possible in the term. Students may begin the accommodation process by submitting an accommodation request form online and uploading documentation. Once students meet with SAS and eligibility has been determined, students submit an online request with SAS each semester to activate their approved accommodations. SAS creates an accessibility letter each semester which informs faculty of potential course access and approved reasonable accommodations; the letter is sent directly to the course instructor **Hepeng Li**. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (the instructor of the course) privately as soon as possible.

Course Schedule Disclaimer (Disruption Clause):
In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Observance of Religious Holidays/Events:
The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result in a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Sexual Violence Policy

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a faculty or staff member who is deemed a "responsible employee" about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination involving members of the campus, they are required to report this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Northern Light Primary Care, University of Maine: at 207-581-4000**. *Confidential Resource Advisor: 207-571-5372 (call or text). Or see the Confidential Resource Advisor website for a complete list of services and resources (open in a new window).*

For *confidential resources off campus*: **Rape Response Services:** 1-800-871-7741 or **Partners for Peace**: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Title IX Student Services: 207-581-1406**, **Office of Community Standards: 207-581-1406**, **University of Maine Police: 207-581-4040 or 911**.

Visit the Title IX Student Services website at umaine.edu/titleix/ for more information.

ECE - 563 - Energy Harvesting and Sensing

2024/25 AY - Undergraduate/Graduate Cross Listing New Course Proposal

General Catalog Information

Undergraduate/Graduate Cross Listing New Course Proposal Form

Read before you begin

FILL IN all fields required marked with an *.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

<u>Requested Action:</u> *Note*: A complete syllabus is required for all new courses, including travel-study courses offered through DLL or Summer Session. Please be sure that all elements required for a syllabus at the University of Maine are present. We recommend you work closely with the syllabus guidelines found at www.umaine.edu/citl.

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

New Course Career Offering*
☐ Undergraduate
☑ Graduate

Please attach any required files by navigating to the right side menu and clicking "Files".

Syllabus* ☑ Attached

(*Add SL: before the title of course. Refer to documentation on the criteria for Service-Learning at: www.umaine.edu/upcc)

NEW COURSE:* ☑ New Course

Please complete the Gen Ed section located towards the bottom of this form, if applicable.

REASON FOR NEW

COURSE* This course has been previously listed numerous times as ECE 498/598, we would like to add it to our permanent course listing.

Department* Electrical and Computing

EFFECTIVE SEMESTER:

Semester* Fall

Year* 2025

PROPOSED CATALOG DESCRIPTION:

Course Designator* ECE

Proposed Course #* 563

Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript). * Energy Harv. and Sensing

Long Course Title* Energy Harvesting and Sensing

Course Description:* This course will introduce students to energy harvesting and sensing, focusing on key concepts and applications. It will cover the fundamentals as well as some notable developments in energy harvesting from mechanical and thermal sources. Instead of attempting an exhaustive overview, the course emphasizes fundamental principles and key developments in energy harvesting and sensing.

ECE 563 and ECE 463 cannot both be taken for degree credits.

Prerequisites: ECE 342 or permission

Corequisites:

** When determining the number of credit hours for your course please note the Definition of an Undergraduate Student Credit Hour as published in the Undergraduate Catalog:

Definition of an Undergraduate Student Credit Hour: The University of Maine and the University of Maine at Machias acknowledge and adhere to the federal definition of a credit hour with respect to courses offered face-to-face, in hybrid format, and online, as developed in 2010 and published in the *Code of Federal Regulations* (CFR), Title 34, Part 600.02:

[A] credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit [. . .] or the equivalent amount of work over a different amount of time; or

(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution[,] including laboratory work, internships, practica, studio work, and other academic work leading to the awarding of credit hours. Rev. September 2018

Credit Hours:*	3
Does it meet Service-Learning?:*	○ Yes ◉ No
Can this course be repeated for credit? *	○ Yes ◉ No
If YES, total number of credits allowed:	
If YES, total number of completions allowed:	
Can students enroll multiple times in term?	○ Yes ◉ No
Will this course be delivered using distance technology for over 50% of the class time?	○ Yes ◉ No

(* if you answered yes to either of these questions below, please consult with CITL as soon as possible: https://umaine.edu/citl/instructional-design-2/)

Will this course be a travel study course? (If you answered yes, please contact the Division of Lifelong Learning as soon as possible for approval: https://dll.umaine.edu)*	○ Yes ◉ No

Curriculum Changes *

- (•) YES, I have submitted curriculum changes documenting how this new course will add to/change the degree requirements for any relevant majors/minors.
- ( ) NO, this course will not be added to any lists of requirements, and therefore I have not submitted curriculum changes for it.

If you answered yes, please attach an edited copy of the current catalog with proposed changes or memorandum with proposed changes.

If you answered yes, please include relevant curriculum changes here along with any edits that will be necessary with the addition of this course.

See attached.

(For information on Course Components Definitions please see: UMS Data Governance Course Components Definitions)

COMPONENTS (type of course/used by Student Records for MaineStreet*

- [ ] Applied Music
- [ ] Clinical
- [ ] Field Experience
- [ ] Independent Study
- [ ] Laboratory
- [x] Lecture
- [ ] Recitation
- [ ] Research
- [ ] Seminar
- [ ] Simulation
- [ ] Studio
- [ ] Thesis
- [ ] Travel Course

When will this course typically be offered *

- [x] Fall
- [ ] Summer
- [ ] Spring
- [ ] Alternating
- [ ] Variable

TEXT(S) PLANNED FOR USE*

1. ***Physics of Semiconductor Devices***, 4th Edition, Simon M. Sze, Yiming Li, Kwok K. Ng, Publisher: Wiley, ISBN: 978-1-119-42911-1, March 2021
2. ***Lessons from Nanoelectronics: A New Perspective on Transport***, Second Edition, Supriyo Datta, World Scientific, ISBN-10: 9813209739, May 2018
3. ***Fundamentals of Materials Science and Engineering: An Integrated Approach***, 6th Edition, William D. Callister Jr., David G. Rethwisch, Publisher: Wiley, ISBN: 978-1-119-68894-5, February 2021
4. ***Fabrication Engineering at the Micro- and Nanoscale***, Stephen A. Campbell, Oxford University Press, 4th Edition, ISBN-10: 0199861226, November 2012

COURSE INSTRUCTOR*

Taher Ghomian, Assistant Professor, 2+2

Are additional resources required for this course?:*

- ( ) YES, please list additional resources required and note how they will be funded or supported.
- (•) NO, the department will not request additional resources for this course, now or in the future, unless the request is accompanied by an explanation of how the increased funding or other support is to be provided.

Additional Resources

Required	

For any resources needed for this course that the instructor is seeking to secure from, or access through, Fogler Library, has Fogler's Head of Collection Services affirmed their availability? *	○ YES, Fogler has affirmed that it has the digital and/or print resources needed for this course. ◉ NO, Fogler has not affirmed that it has the digital and/or print resources needed for this course (or, has confirmed that it cannot supply them).

If you answered NO above, please plan accordingly as you prepare to deliver your course.

Will offering this course result in overload salary payments (either through the college or DLL) either to the instructor of this course or to anyone else as a result of rearranging teaching assignments? If yes, please explain:*	N/A

Does the content of this course overlap significantly with other University courses? If so, list the course, explain the overlap, and justify the need for the proposed course.*	N/A

What other department/programs are affected? Have affected departments/programs been consulted? Have any concerns been expressed? Please explain:*	N/A

ECE 463/563 Energy Harvesting and Sensing

Course Information

Course Description: This course will introduce students to energy harvesting and sensing, focusing on key concepts and applications. It will cover the fundamentals as well as some notable developments in energy harvesting from mechanical and thermal sources. Instead of attempting an exhaustive overview, the course emphasizes fundamental principles and key developments in energy harvesting and sensing.

ECE 563 and ECE 463 cannot both be taken for degree credits.

Number of credit hours: 3

Course details about location, day, and time: TBD

Prerequisites: ECE 342 or permission

Course Delivery Method

Mode of Instruction

In-person

Time Options

Synchronous

Digital Services, Hardware, Software

Assignments will be announced in class, via Brightspace, or by email, so please stay attentive to these announcements.

Faculty Information

Name: Taher Ghomian, Ph.D.
Phone: 207-581-2253
E-mail: taher.ghomian@maine.edu
Office address: 243 ESRB/ Barrows Hall
Office hours: TBD

Instructional Materials and Methods

Research articles and following recommended textbooks

1. ***Physics of Semiconductor Devices***, 4th Edition, Simon M. Sze, Yiming Li, Kwok K. Ng, Publisher: Wiley, ISBN: 978-1-119-42911-1, March 2021
2. ***Lessons from Nanoelectronics: A New Perspective on Transport***, Second Edition, Supriyo Datta, World Scientific, ISBN-10: 9813209739, May 2018
3. ***Fundamentals of Materials Science and Engineering: An Integrated Approach***, 6th Edition, William D. Callister Jr., David G. Rethwisch, Publisher: Wiley, ISBN: 978-1-119-68894-5, February 2021
4. ***Fabrication Engineering at the Micro- and Nanoscale***, Stephen A. Campbell, Oxford University Press, 4th Edition, ISBN-10: 0199861226, November 2012

Course Goals:

The goal of this course is to prepare students for in-depth studies and future developments in mechanical and thermal energy harvesters, focusing on their research, projects, and applications.

Student Learning Outcomes

1) Explain the fundamentals of mechanical energy harvesting methods including piezoelectric, electrostatic, and Triboelectric generators (G, UG)
2) Describe the fundamentals of thermal energy harvesting methods including photovoltaic and thermoelectric generators (G, UG)
3) Determine the appropriate energy harvesting technique(s) based on the specific application (G, UG)

4) Select appropriate materials for the specific method based on the application (G, UG)

5) Communicate effectively with a range of audiences by presenting a topic related to the course (G, UG)

6) Synthesize class knowledge, identify applicable research resources and other relevant information, and critically analyze and evaluate findings (G)

Grading and Course Expectations

- Final Exam: (ECE 463: 20%, ECE 563: 15%)
- Mid-term Exam: (ECE 463: 20%, ECE 563: 15%)
- Quizzes: (ECE 463: 10%, ECE 563: 10%)
- Term presentation: (ECE 463: 20%, ECE 563: 30%)
- Homework: (ECE 463: 20%, ECE 563: 20%)
- Class participation: (ECE 463: 10%, ECE 563: 10%)

Your presentation should be related to the course topics and approved by the instructor. Students who take 563 should be able to critically analyze and evaluate research findings on the assigned topic and discuss the high-level questions asked by the audience in their term presentations. The term presentation consists of

ECE 563: 15-minute talk followed by Q&A and discussion

ECE 463: 10-minute talk and short Q&A session

Grading Scale:

Percentage Range	Letter Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-

77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
Below 60	F

Course Schedule:

- Topics:
  - Introduction to energy harvesting and the contribution of the micro and nanosystems (2 classes)
  - Piezoelectricity in materials (1 class)
  - Losses in piezoelectric generators (1 class)
  - Charge extraction in capacitor-based harvesters (2 classes)
  - Piezoelectric generators and successful Implementations (2 classes)
  - Principles of electrostatic generators and successful implementations (2 classes)
  - Numerical methods for capacitance calculation (1 class)
  - Principles of triboelectric generators, improvement methods, and Implementations (2 classes)
  - Introduction to thermal radiation and blackbody concept (2 classes)
  - Introduction to p-n junction photovoltaics (3 classes)
  - Nanomaterials in photovoltaics and their contribution to harvesting thermal radiations (2 classes)
  - Introduction to thermoelectric generators (1 class)

    - Transport and thermoelectricity in nanomaterials (3 classes)
    - Recent progress in thermoelectric generators (2 classes)
    - Review (1 class)
    - Midterm exam (1 class)
- Homework Due dates: TBD
- Breaks in the academic calendar: Fall break and Thanksgiving
- Midterm exam due date: TBD
- Final exam date: TBD

Course Policies

- Brightspace will be used for distributing lectures. Assignments will be announced in class, via Brightspace, or by email. I usually communicate via official email and Brightspace. Please always keep an eye on them.
- Class attendance is not mandatory. However, student presentations are designed to be interactive, as such student participation is required in those presentations.
- Late homework is not accepted and makeup exams may not be given unless by presenting an excuse showing extreme circumstances. No makeup quizzes will be given for any reason. Two lower grades for quizzes will not be considered on your final grade calculation and you are allowed to miss two student presentations without submitting any excuse.
- If I miss any class due to any scheduled or unexpected events, I will post video lectures or self-studies. It is your responsibility to study and prepare accordingly.
- I may supply and point out additional study materials if required. The study materials may be additional notes, video tutorials, open-source links, etc.
- ~~The instructor may change the grading policy, considering the condition.~~
- The use of generative AI writing tools (such as ChatGPT, GrammarlyGO, GPT-3, GPT-4, Elicit, BERT, or others) to support you as a writer (e.g., for brainstorming, finding search terms for research, translating, getting feedback for revising and editing) is allowed in this class. Such use must be properly acknowledged in references, bibliographies, or other formats.

Campus Policies

Academic Honesty Statement:

Academic honesty is very important. It is dishonest to cheat on exams, to copy term

papers, to submit papers written by another person, or generated by software or systems without the explicit approval of the instructor, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314.

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If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 139 Rangeley Rd, um.sas@maine.edu, 581.2319, as early as possible in the term. Students may begin the accommodation process by submitting an accommodation request form online and uploading documentation. Once students meet with SAS and eligibility has been determined, students submit an online request with SAS each semester to activate their approved accommodations. SAS creates an accessibility letter each semester which informs faculty of potential course access and approved reasonable accommodations; the letter is sent directly to the course instructor **Taher Ghomian**. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (the instructor of the course) privately as soon as possible.

Course Schedule Disclaimer (Disruption Clause):

In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

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long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Sexual Violence Policy

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a faculty or staff member who is deemed a "responsible employee" about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination involving members of the campus, they are required to report this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Northern Light Primary Care, University of Maine: at 207-581-4000**. *Confidential Resource Advisor: 207-571-5372 (call or text). Or see the Confidential Resource Advisor website for a complete list of services and resources (open in a new window).*

For *confidential resources off campus*: **Rape Response Services:** 1-800-871-7741 or **Partners for Peace**: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Title IX Student Services: 207-581-1406**, **Office of Community Standards: 207-581-1406**, **University of Maine Police: 207-581-4040 or 911**.

Visit the Title IX Student Services website at umaine.edu/titleix/ for more information.

ECE - 579 - Advanced Cybersecurity

2024/25 AY - Undergraduate/Graduate Cross Listing New Course Proposal

General Catalog Information

Undergraduate/Graduate Cross Listing New Course Proposal Form

Read before you begin

FILL IN all fields required marked with an *.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

Requested Action: ***Note*: A complete syllabus is required for all new courses, including travel-study courses offered through DLL or Summer Session. Please be sure that all elements required for a syllabus at the University of Maine are present. We recommend you work closely with the syllabus guidelines found at www.umaine.edu/citl.**

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

New Course Career Offering* ☐ Undergraduate ☑ Graduate

Please attach any required files by navigating to the right side menu and clicking "Files".

Syllabus* ☑ Attached

(*Add SL: before the title of course. Refer to documentation on the criteria for Service-Learning at: www.umaine.edu/upcc)

NEW COURSE:* ☑ New Course

Please complete the Gen Ed section located towards the bottom of this form, if applicable.

REASON FOR NEW

COURSE* This class has been listed numberous times before as ECE 498/598, we would like to add it to our permanent course listing.

Department* Electrical and Computing

EFFECTIVE SEMESTER:

Semester* Fall

Year* 2025

PROPOSED CATALOG DESCRIPTION:

Course Designator* ECE

Proposed Course #* 579

Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript). * Adv. Cybersecurity

Long Course Title* Advanced Cybersecurity

Course Description:* This course will cover the most important areas of cybersecurity including software security, hardware security, network & system security, data security, social engineering, and different emergent areas of cybersecurity (such as the security of Artificial Intelligence models and the smart grid). This course has been built following the experiential learning paradigm and students will familiarize themselves with different aspects of cybersecurity through hands-on assignments. Additionally, through the projects, the students will build an emphasis on a particular area of their interest.

ECE 579 and ECE 479 cannot both be taken for degree credits.

Prerequisites: ECE 271 or COS 235 or permission

Corequisites:

** When determining the number of credit hours for your course please note the Definition of an Undergraduate Student Credit Hour as published in the Undergraduate Catalog:

Definition of an Undergraduate Student Credit Hour: The University of Maine and the University of Maine at Machias acknowledge and adhere to the federal definition of a credit hour with respect to courses offered face-to-face, in hybrid format, and online, as developed in 2010 and published in the *Code of Federal Regulations* (CFR), Title 34, Part 600.02:

[A] credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit [. . .] or the equivalent amount of work over a different amount of time; or

(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution[,] including laboratory work, internships, practica, studio work, and other academic work leading to the awarding of credit hours. Rev. September 2018

Credit Hours:*	3
Does it meet Service-Learning?:*	○ Yes ◉ No
Can this course be repeated for credit? *	○ Yes ◉ No
If YES, total number of credits allowed:	
If YES, total number of completions allowed:	
Can students enroll multiple times in term?	○ Yes ◉ No
Will this course be delivered using distance technology for over 50% of the class time?	○ Yes ◉ No

(* if you answered yes to either of these questions below, please consult with CITL as soon as possible: https://umaine.edu/citl/instructional-design-2/)

Will this course be a travel study course? (If you answered yes, please contact the Division of Lifelong Learning as soon as possible for approval: https://dll.umaine.edu)*	○ Yes ◉ No

Curriculum Changes *

- (•) YES, I have submitted curriculum changes documenting how this new course will add to/change the degree requirements for any relevant majors/minors.
- ( ) NO, this course will not be added to any lists of requirements, and therefore I have not submitted curriculum changes for it.

If you answered yes, please attach an edited copy of the current catalog with proposed changes or memorandum with proposed changes.

If you answered yes, please include relevant curriculum changes here along with any edits that will be necessary with the addition of this course.

see attached.

(For information on Course Components Definitions please see: UMS Data Governance Course Components Definitions)

COMPONENTS (type of course/used by Student Records for MaineStreet*

- [ ] Applied Music
- [ ] Clinical
- [ ] Field Experience
- [ ] Independent Study
- [ ] Laboratory
- [x] Lecture
- [ ] Recitation
- [ ] Research
- [ ] Seminar
- [ ] Simulation
- [ ] Studio
- [ ] Thesis
- [ ] Travel Course

When will this course typically be offered *

- [ ] Fall
- [ ] Summer
- [x] Spring
- [ ] Alternating
- [ ] Variable

TEXT(S) PLANNED FOR USE*

- Learning Malware Analysis: Explore the concepts, tools, and techniques to analyze and investigate Windows malware, Monnappa K A
- Hacking Exposed 7: Network Security Secrets and Solutions, Stuart McClure, Joel Scambray, George Kurtz, © 2012, McGraw Hill, ISBN 978-0-07-178028-5.
- Bhunia, Swarup, and Mark Tehranipoor. Hardware security: a hands-on learning approach. Morgan Kaufmann, 2018.
- Paar, Christof, and Jan Pelzl. Understanding cryptography: a textbook for students and practitioners. Springer Science & Business Media, 2009.

COURSE INSTRUCTOR*

Prabuddha Chakraborty, Assistant Professor, 2+2

Are additional resources required for this course?:*

- ( ) YES, please list additional resources required and note how they will be funded or supported.
- (•) NO, the department will not request additional resources for this course, now or in the future, unless the request is accompanied by an explanation of how the increased funding or other support is to be provided.

Additional Resources Required

For any resources needed for this course that the instructor is seeking to secure from, or access through, Fogler Library, has Fogler's Head of Collection Services affirmed their availability? *	○ YES, Fogler has affirmed that it has the digital and/or print resources needed for this course. ◉ NO, Fogler has not affirmed that it has the digital and/or print resources needed for this course (or, has confirmed that it cannot supply them).

If you answered NO above, please plan accordingly as you prepare to deliver your course.

Will offering this course result in overload salary payments (either through the college or DLL) either to the instructor of this course or to anyone else as a result of rearranging teaching assignments? If yes, please explain:*	N/A
Does the content of this course overlap significantly with other University courses? If so, list the course, explain the overlap, and justify the need for the proposed course.*	While ECE 479/579 and COS 430/530 share foundational topics in cybersecurity, ECE 479/579 addresses different aspects that make it a valuable addition to the curriculum. These differences ensure that the courses complement rather than duplicate each other, providing students with a broader education in cybersecurity. For instance, ECE 479/579 covers hardware-related cybersecurity topics such as hardware trojans, power and electromagnetic side-channel attacks, secure smart grids, and logic locking. The course also explores the emerging field of AI security, including adversarial attacks on AI models. By offering depth in emerging and hardware-focused areas of cybersecurity, ECE 479/579 complements COS 430/530. Its inclusion in the curriculum ensures that students gain expertise across diverse domains, equipping them to tackle the evolving cybersecurity landscape effectively. This broader scope aligns with industry needs and provides a critical differentiator for students pursuing careers or research in this field.
What other department/programs are affected? Have affected departments/programs been consulted? Have any concerns been expressed? Please explain:*	No other departments are adversely affected. An ad hoc committee composed of ECE and COS representatives met to ensure that ECE 479/579 and COS 430 are complementary rather than overlapping. After discussion, it was determined that while ECE 479/579 emphasize hardware concepts, COS 430 focuses primarily on broader security aspects, resulting in minimal content overlap.

ECE 479/579 Advanced Cybersecurity

Course Information

Course description: This course will primarily focus on advanced cybersecurity concepts (e.g., Internet-of-Things Security, Hardware Security, Artificial Intelligence Security). Additionally, the initial part of the course will briefly introduce key cybersecurity concepts (data security, software security, network security, OS Security). This course has been built following the experiential learning paradigm, and students will familiarize themselves with different aspects of cybersecurity through hands-on assignments. Additionally, through the projects, the students will build an emphasis on a particular area of their interest.

ECE 579 and ECE 479 cannot both be taken for degree credits.

Number of credit hours: 3

Course details about location, day, and time: TBD

Prerequisites: ECE 271 Micro Arch & Applications or COS 235 Computer Architecture or permission

Course Delivery Method

Mode of Instruction

In-person

Time Options

Synchronous

Digital Services, Hardware, Software

Learning Management System: Brightspace

Collaboration and Communication Services: Google Drive and Docs

Faculty Information

Name & Title: Prabuddha Chakraborty (Assistant Professor)
Phone numbers: 207-581-3329
E-mail address: prabuddha@maine.edu
Office address: 107 Barrows Hall, University of Maine
Office hours: TBD

Instructional Materials and Methods

Material will be taken from a variety of open sources. For reference, please look into the following items:

- Learning Malware Analysis: Explore the concepts, tools, and techniques to analyze and investigate Windows malware, Monnappa K A
- Hacking Exposed 7: Network Security Secrets and Solutions, Stuart McClure, Joel Scambray, George Kurtz, © 2012, McGraw Hill, ISBN 978-0-07-178028-5.
- Bhunia, Swarup, and Mark Tehranipoor. Hardware security: a hands-on learning approach. Morgan Kaufmann, 2018.
- Paar, Christof, and Jan Pelzl. Understanding cryptography: a textbook for students and practitioners. Springer Science & Business Media, 2009.

Additional materials: TBD

Course Goals:

The goal of this course is to teach students about both fundamental and advanced concepts of cybersecurity and expose them to different sub-disciplines of cybersecurity. This exposure will allow interested students to pursue higher education in cybersecurity-related fields, engage in cybersecurity research activities, and pursue a career in cybersecurity. Students should also come out of this course with a basic understanding of different cybersecurity concerns in our modern digital world and general know-how about mitigating (or finding the right resources to mitigate) those concerns.

Instructional Objectives:

1. Introduce the students to different aspects of cybersecurity:
    a. Network Security
    b. Software Security
    c. Artificial Intelligence Security
    d. Hardware Security
    e. Social Engineering
2. Emphasize Internet-of-Things Security and Hardware Security
3. Ensure theoretical understanding through exams
4. Ensure hands-on understanding of cybersecurity through assignments.
5. Ensure that the students can tackle state-of-the-art cybersecurity challenges through projects.

Student Learning Outcomes

ECE 479

Upon completion of the course, students will be able to:

- **SLO 1**: Use and extend open-source diverse cybersecurity frameworks
- **SLO 2**: Describe and compare the fundamentals of different cybersecurity sub-fields: Software Security, Hardware Security, Network Security, Data Security, and Social Engineering
- **SLO 3**: Demonstrate hands-on experience in system security evaluation and defense

ECE 579

Upon completion of the course, students will be able to:

- **SLO 1**: Use and extend open-source diverse cybersecurity frameworks
- **SLO 2**: Describe and compare the fundamentals of different cybersecurity sub-fields: Software Security, Hardware Security, Network Security, Data Security, and Social Engineering
- **SLO 3**: Demonstrate hands-on experience in system security evaluation and defense
- **SLO 4:** Critically evaluate state-of-the-art cybersecurity research article(s) and synthesize key findings into well-structured technical reports

Grading and Course Expectations

Score Distribution [ECE 479]

- Participation (5%)
- Class Assignments (30%)
- Mid-term Exam (25%)
- Project (40%):
    - Proposal [5%]
    - Project Technical Execution [25%]
    - Project Presentation [10%]

Score Distribution [ECE 579]

- Participation (5%)
- Class Assignments (30%)
- Mid-term Exam (15%)
- Research Article Review (10%)
- Project (40%):
    - Proposal [5%]
    - Project Technical Execution [25%]
    - Project Presentation [10%]

Final letter grades for the course will be assigned following minimum guidelines (the instructor reserves the right to lower the cutoff points but will not raise them):

93 - 100	A
90 - 92	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
73 - 76	C
70 - 72	C-
67 - 69	D+
63 - 66	D
60 - 62	D-
0 - 59	F

Further, the instructor has the right to lower the grade by one letter because of two or more unexcused absences from the lecture or non-compliance with the performance measures above.

Lab/Computer Use

No formal labs. The students should be **familiar with** or **willing to rapidly self-learn**: Matlab, Python, C/C++, and the Linux ecosystem, and similar software/technologies. Not all programming languages may be required depending on project choice and preferences.

Wireshark, Metasploit, and Binary Ninja will be minimally introduced in the class to carry out the assignments. However, the students should be **willing to self-learn** these frameworks with minimal guidance from the instructor or the teaching assistants.

Course Schedule:

Week	Topics
Week 1	Introduction, Ethics and Cyber Laws, CIA Triad, Security Terminologies, Social Engineering
Week 2	Data Encryption, Private Key Cryptography, Hashing
Week 3	Public Key Cryptography, Digital Signature
Week 4	Buffer Overflow, Format-String, Race Conditions, Network Security
Week 5	Advanced OS Security – Project Proposal Due
Week 6	Timing Side-Channel [Software and Hardware], **Research Article Review Due [G]**
Week 7	Security of Artificial Intelligence, Inference Attacks, Side Channel
Week 8	Hardware Security Demo**, Assignments: Intro**
Week 9	--- Spring Break ---
Week 10	Hardware Security, Power/EM Side Channel **Assignments Due**
Week 11	Hardware Trojans, Logic Locking, **Mid-term [Thursday Class]**

Week 12	Secure Smart Grid
Week 13	Secure Digital Manufacturing
Week 14	**Project** Presentations/Demonstrations
Week 15	**Project** Presentations/Demonstrations, **Final Project Submission Due**

Course Policies

Professionalism: Employers expect our graduates to behave like professionals.

- A professional is reliable - gets the job done on time
- A professional follows up on all the details.
- A professional has initiative – finds out what he/she does not know.
- A professional accepts responsibility fully – and does not blame others for failure.
- A professional is respectful to others.

Performance standards/grading policy: All quizzes and requested submissions must be completed, and assignments must be done professionally, legibly (homework/reports should be **preferably typed**) and show evidence that an honest and significant effort was given.

Students are encouraged to communicate with each other on individual assignments. However, EACH student is expected to hand in their own work and write-up (including any computer code or computer-generated plots). Solutions copied from other students, from the web, from a solution manual, or from another source may receive a NEGATIVE grade which will not be dropped from the grade calculation. Both the student copying the work and the student providing the work to be copied will be penalized.

Late submission of assignments will be heavily penalized. Participation will be assessed based on class attendance.

Generative AI Policy: Generative AI (Artificial Intelligence that can produce content) is now widely available to produce text, images, and other media. We encourage the use of such AI resources to inform yourself about the field, to understand the contributions that AI can make, and to help your learning. However, keep the following three principles in mind: (1) An AI cannot pass this course; (2) AI contributions must be attributed and true; (3) The use of AI resources must be open and documented.

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Academic Honesty Statement:

Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, or generated by software or systems without the explicit approval of the instructor, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

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EDT - 573 - Introduction to Web & Dynamic App Development for Educators

Graduate New Course Proposal Form - 2024/25 AY

General Catalog Information

Graduate New Course Proposal Form

Read before you begin

FILL IN all fields required marked with an *.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

Requested Action: ***Note*: A complete syllabus is required for all new courses.**

Please be sure that all elements required for a syllabus at the University of Maine are present. We recommend you work closely with the syllabus guidelines found at www.umaine.edu/citl.

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

Please attach any required files by navigating to the right side menu and clicking "Files".

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule as well as instructions on completing this form. [https://umaine.edu/graduate/facultystaff-resources/curriculum-committee/]

Syllabus* ☑ Attached

REASON FOR NEW COURSE* EDT 573, Introduction to Web & Dynamic App Development for Educators is the last course to be created for the Computational Thinking for Educators Certificate. If approved, EDT 573 will complete the offered electives in the program.

Department* School of Learning and Teaching

New Course: * ☑ New Course ☐ Experimental (One time offering)

EFFECTIVE SEMESTER:

Semester* Fall **Year*** 2025

PROPOSED CATALOG DESCRIPTION:

Course Designator* EDT **Proposed Course #*** 573

Course Type: * Education Technology

Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max Length is 30 characters). * Intro Web & App Dev for Educat

Long Course Title* Introduction to Web & Dynamic App Development for Educators

Course Description:* In this course, we will explore the intrusion and implementation of the screen in our daily (sometimes hourly experience). We will identify a purpose for web or app-based projects and develop these with their audience in mind to create sustainable communities and interactive content. We will explore alternative hosting solutions to design interactive, engaging student content using basic coding skills to make accessible, ADA-compliant web materials founded on a strong conceptual framework of learning design and web development. We will also explore troubleshooting tricks to manipulate a digital learning or community space so that it meets our teaching or audience/purpose goals. Participants will leave with a wide variety of web artifacts to support our practices through crowd-sourcing artifacts to creating hands-on, project-based sites and/or apps. Artifacts and discoveries will be shared in peer-critique groups and tested by classmates for continual improvement, creativity, active learning, and design iteration.

Prerequisites: None

Corequisites:

Definition of Credit Hours: Go to https://umaine.edu/graduate/students/progress/enroll/#define-credit-hour for the definition of a credit hour at UMaine.

Credit Hours: * 3

Can this course be repeated for credit? * ○ Yes ◉ No

If YES, total number of credits allowed:

If YES, total number of completions allowed:

Can students enroll multiple times in term? * ○ Yes ◉ No

Instruction Mode: Select the mode of instruction for this course. Review the instruction modes documentation provided by UMS. https://gojira.its.maine.edu/confluence/display/DARTS/Instruction+Modes+Documentation. *

☐ Distance Synchronous Learning ☐ Hybrid/Blended ☐ Hyflex ☐ In-Person
☑ Online (Asynchronous)

(For information on Course Components Definitions please see: UMS Data Governance Course Components Definitions)

Course Components (type of course/used by Student Records for MaineStreet) *

☐ Applied Music ☐ Clinical ☐ Field Experience ☐ Independent Study
☐ Laboratory ☑ Lecture ☐ Recitation ☐ Research ☐ Seminar
☐ Simulation ☐ Studio ☐ Thesis ☐ Travel Course

When will this course typically be offered *

☑ Fall ☐ Summer ☐ Spring ☐ Alternating ☐ Variable

Text(s) Planned for Use *

Web Design Basics for Educators by Torrey Trust, EdTech Books, 2019

Web Design Primer by Richard Adams and Ahmed Sagarwala, Pressbooks, 2018

The Missing Link: An Introduction to Web Development and Programming by MIchael Mendez, SUNY, 2014

Course Instructor *

Araminta Matthews

Adjunct Instructor

Will instructional cost for this course proposal involve financial support from the Division of Life Long learning? *

☐ Yes
☑ No

Proposed Resources: Does the course addition or modification require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?*	☑ No. The academic unit will not request additional resources for the course ☐ Yes
Units Affected: What other academic units are affected (e.g. course overlap, prerequisites)? Have the affected units been consulted? Any concerns expressed? Please explain.*	N/A
Course Frequency: Does the content of this course overlap significantly with other University courses? If so, list the course, explain the overlap, and justify the need for the proposed course.*	N/A

Updated 10/28/2023)

EDT 573: Introduction to Web & Dynamic App Development for Educators

Course Information

Number of Credits: 3
Prerequisites: None
Course frequency: Varies

Course Description

In this course, we will explore the intrusion and implementation of the screen in our daily (sometimes hourly experience). We will identify a purpose for web or app-based projects and develop these with their audience in mind to create sustainable communities and interactive content. We will explore alternative hosting solutions to design interactive, engaging student content using basic coding skills to make accessible, ADA-compliant web materials founded on a strong conceptual framework of learning design and web development. We will also explore troubleshooting tricks to manipulate a digital learning or community space so that it meets our teaching or audience/purpose goals. Participants will leave with a wide variety of web artifacts to support our practices through crowd-sourcing artifacts to creating hands-on, project-based sites and/or apps. Artifacts and discoveries will be shared in peer-critique groups and tested by classmates for continual improvement, creativity, active learning, and design iteration.

Course Delivery Method

Mode of Instruction

Online

Time Options

Asynchronous

Digital Services, Hardware, Software

The course will use:

Brightspace Learning Management System (i.e. Brightspace)

The course might use:

- Web or Video Conferencing Service (i.e. Google Hangout, Zoom)
- Video Recording/Sharing Service (i.e. Kaltura)
- Collaboration and Communication Services (i.e. Google Drive and Docs)
- Library and eReserve Service Required Hardware and Software

Faculty Information

Araminta Matthews, MFA, GCDF /. Email: mina.matthews@maine.edu

Instructional Materials and Methods

Most resources and materials will be placed on Brightspace (Learning Management System). The following Open Educational Resources are listed in their complete format below, but please note we will only be using a portion of each of these books in our course. These tools are listed for your personal reference. You will also develop a personal "wiki" of resources and applications for developing your web artifacts throughout the course.

Required Textbooks (all OERs):

Web Design Basics for Educators by Torrey Trust, EdTech Books, 2019

Web Design Primer by Richard Adams and Ahmed Sagarwala, Pressbooks, 2018

The Missing Link: An Introduction to Web Development and Programming by MIchael Mendez, SUNY, 2014

Additional Resources (Also OERs):

Designing for Care by Jerod Quinn; Martha Burtis; Surita Jhangiani; and Catherine J. Denial, Pressbooks, 2022.

Web Writing by A. Nicole Pfannenstiel, Ph.D. PA-Adopt, 2023.

Universal Design for Learning (UDL) for Inclusion, Diversity, Equity, and Accessibility (IDEA) by Darla Benton Kearney, Open Library, 2022.

Business Information Systems: Design an App for That by Raymond Frost, Jacqueline Pike, Lauren Kenyo, and Sarah Pels, Ohio University, 2011.

Additional Student Requirements (Optional depending on the type of project you choose to pursue): Students will conduct a personalized project designed for your unique needs

which may require the purchase of a domain for full-stack web development and hosting solution; or you may choose to use freely available resources to develop your web materials

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Online Modules and Activities:

Module 1: Hello World [Week 1]

- Course introductions
- Read "The Original Proposal 1989" by Sir Tim Berners-Lee
- Read "A Brief History of Mobile Apps" by Inventionland (website)
- Read selections from OER textbooks (*Links for all OER textbooks are* available in Overview/Syllabus as well as "M1: Instructor Welcome Materials, Textbooks, and Syllabus")
    - Collaborate to determine micro and macro learning goals regarding web development
- Complete the Course Survey to determine what you already know about designing for web and mobile applications

Module 2: Audience and Purpose [Week 2]

- Read in *Web Design for Educators* by Torrey Trust, pp. 5-15 (re: visual design and "the fold")
- Read in *Web Design Primer* by Richard Adams & Ahmed Sagarwala, pp. 1-9 (Introduction/Chapter 1) / Chapter 11 (Uploading Content to a Web Server) introducing basic web concepts and full-stack development concepts
- Read in *Designing for Care,* Ch. 1 by Jessica O'Reilly (linked here)
- Read website from Elementor "What is Above the Fold?" and review lecture on “responsive design for screen variation”
- Read website from Blue Hills Digital "What's the Purpose of Your Website?"
- Post your original response to "Designing for the Visual" (first interaction with a WYSIWYG using the discussion board’s built-in HTML/Style-editor to introduce some basic web design principles[1])
- Post your original response to "My Website's Purpose" to begin fleshing out your long-term project goals

Module 3: Basic Coding, Programming, and File Protocols [Weeks 3 - 4]

- Create a document for storing annotated bibliography of the resources you collect
- Download Notepad++ from the web (or prepare to use an alternative HTML documentation device if you have one you already like) ~ on your own
- Watch the video lecture/demo on basic CSS and HTML5
- Read in *Web Design Primer* by Richard Adams & Ahmed Sagarwala, Chapter 3 "HTML" (and while reading, remember Douglas Adams' *Don't Panic!* This is immersion. These ARE the droids you are looking for... All will become clear soon)

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[1] Note: Every module/week, students engage in a discussion that uses the built-in HTML/Style editor within Brightspace, the Learning Management System, to construct basic webpages as a form of practice for later, external web or app based artifacts.

- File Transfer Protocols and using a Content Management System in a formal web domain system (in *Web Design Primer)* and watch video sample of this method (the most efficient method for those of you working with a typical, contemporary domain)[2].
- Assignment: Compare and contrast the difference between WYSIWYG development, CSS/HTML/Javascript (full-stack) development, and the use of freeware (like Weebly) vs. Content Management System services (like domain hosting with File-transfer-protocols) (Additional goals of this prompt are to again use basic style coding within the LMS WYSIWYG to demonstrate a few key features of web development while concurrently answering the question)
- Read, play with, and book mark W3Schools *How to Make a Website*
- Read *Website Wireframe Beginner's Guide: Processes, Tools, and Examples* by Maddy Osman
    - Skim Tools for Wireframing (add to your annotated resource list):
        - Paper and pencil/pen
        - Miroboards
        - Lucidcharts
        - Google Draw
- Create a wireframe for your *Discussion Board Post (see video/demo FMI)*
- Post to M3Db1: "Wireframe and the Basics" -- your wireframe and response questions using basic HTML (or WYSIWYG) to complete prompts (instructions in post prompt *and* video/demo)
    - Must upload both your Wireframe (as image) and a Notepad++ HTML copy of your web page with our response.

Module 4: Dynamic Media and Content Management [Week 5]

- Read "Selecting Digital Media" in Torrey Trust's *Web Design for Educators*
- Read "Chapter 6: Image Optimization" in Adams' and Sagarwala's *Web Design Primer*
- Read "UDL Chapter 2: 2.1 - 2.3 UDL in the Design, Delivery, and Development Phases" (Note: there are 4 links in this bullet point)
- Read "Designing for Inclusion" in *Designing for Care*
- Watch Lectures on Alt Text, Hexidecimal colors, and basic HTML fixes for common breaks in code
- Watch Video Lecture
    - Bookmark / Explore:
        - Canva
        - Pexels
        - Adobe Color
- Complete Quiz on HTML5 and CSS basics
- Complete M4Db1: Using discussion board as your WYSIWYG: Create 5-Point Infographic and 3-point Annotated Image Post Discussion Board
    - Be prepared for responses to carry over into Module 5
    - Post non-example of website for mobile device (see instructions: a “website that doesn’t work on a mobile device well”) and explain why you think it’s not working
        - Note: you'll need to respond to at least FIVE classmates *in Module 4).*

[2] This was originally in Module 9, but is moved here to highlight advanced web development theories early. It should be noted all students will develop the site or app they, themselves, choose to create based on personal goals within the framework of the course’s learning outcomes.

- Read in *Universal Design for Learning (UDL) For Inclusion, Diversity, Equity, and Accessibility (IDEA)* Module 1 "Introduction and Overview of UDL" (sections 1.1 through 1.4)

Module 5: [Weeks 6 to 8]

- Complete Week 1 of 3Assignments:
  - Complete Responses to "M4db1: Create a 5-Point Infographic and Include 3 Annotated Images" per instructions in the discussion board (Mark as Complete when through)
    - Read in *Web Design for Educators, "Selecting Digital Media: Understanding Copyright, Fair Use, and Creative Commons"*
    - Read in *Universal Design for Learning,* "3.1 Principles of Accessible Legislation" and "3.3 OHRC and Accommodations"
    - Read in *Designing for Caring,* "Feeling (Un)Seen"
    - Read "The Law of the Remote Classroom"
    - Read "TEACHing from a Distance and Copyright Considerations"
    - Read "What is COPPA?"
    - Review "W3 Schools Color Saturation"
    - Read "WebAIM's Guide to Color Saturation and ADA Compliance" (Contrast and Color Accessibility)
    - Watch Using WAVE Demonstration Video (optional PAVE Demonstration video regarding accessibility of PDFs on a website)
  - Complete Initial Post to M5db1 using the discussion board as a WYSIWYG to create a basic website in response to the prompt
- Complete Week 2 of 3:
  - Submit responses to 5 classmates' posts to M5db1
  - Scavenger hunt: Groups think/pair/share in groups segments of following (the following readings are broken up into groups for responses. You need not read them all. Check your group for details). Full list:
    - Read in the Web Design Primer Chapter 4--The Semantic Web
    - Read "9 Most Popular Websites and What they Include"
    - Read "Complete Guide: 29 Website Features to Impress Your Audience"
    - Read 150 Neat Tips to Engage Learners
    - Read 27 Common Types of Websites with Templates to Get you Started
    - Read "The Law of the Remote Classroom"
    - Read "12 Higher Education Website Features Marketers Need"
    - Read "6 Signs Your Organization Needs an LMS"
    - Read "8 Key Features for Websites in the Education Sector"
    - Read "7 Essential Features for Education Website Design According to HEM Website Experts"
    - Read "Your Complete Guide to K-12 Websites"
    - Read "7 Features to Look for in a Training Management Software"
    - Read “Do you Need a Full Stack kit and Content Management System?”
  - DB: Complete Scavenger Hunt for website that *resembles* what you imagine the website you want to make looks like and share it to M5db2: Website Dream Design Scavenger Hunt Initial Post–explain what type of website you believe this to be and what tools you believe you will need to create it (freeware? WYSIWYG? App development? Content

Management System?) Refer back to your group's reading materials in your response per prompt
        - Respond to classmates from another group with reference to reading materials from your group. See details in instructions
    - Assignment: Complete M5db3: Website Purpose, Part II--Make a List of the Features your Final Website should include and why (cite your sources from this week's reading)
- Complete Week 3 or 3:
    - Respond to at least 6 classmates' M5db3--Website Purpose, Part II--Make a List of the Features of Your Final Website posts (remember: your goal is to see a website or app as a list of *features–what features can you add or subtract from your classmates' choices to help them meet their audience/purpose)*
    - Read "Module 5: Indigenous Pedagogies and the Benefit for All Learners in Ontario" and all subsections (5.1-5.5) in *Universal Design for Learning*
    - Read "Ch 3: Humanizing Online Learning" and "Ch 5: Designing for Inclusion" in *Designing for Care*
    - Complete Mid-Course Reflection Activity–Using the DB as your WYSIWYG, create an "inclusive" design that responds to the prompt and includes exemplars of your web development skills. Comment on any HTML fixes you made to generate the design. Attach a copy of the .txt file or a link to your code on GitHub to demonstrate the HTML you generated for your Db response

Module 7: General Design Schemes, Organizational Strategies, and Element Hacks [Weeks 9 to 11]

- Week 1 of 3
    - Read in *Web Design for Educators* Multi-Media Design
    - Read in *Web Design Primer* Video
    - Read in *Web Design Primer* Animation
    - Read Digital Accessibility for Video
    - Read in *UDL* UDL for EDI
    - Review and share to db possible website tools for hosting a mock-up
    - Review and share to db possible video/animation tools
    - Create and post a video/animation (per prompt)
        - Include corrected transcript and/or closed captioning
        - Reflection Journal (video): Answer questions to prepare for week 2
            - What does it mean to be "locked behind authentication?" And will your site be or not be? That is the question
            - How does Authentication protect FERPA--What is your purpose?
            - How does Authentication allow for the inclusion of Copyrighted material on your site--TEACHAct Freedom?
            - When choosing a domain and hosting solution, how will you optimize your CMS (or your design) to ensure you remaining in compliance with these elements?
- Week 2 of 3 :
    - Respond to at least 3 classmates video/animation posts
    - Read SEO for Education Websites: A Primer
    - Watch Screenreader Demo for Digital Accessibility
    - Read What Is Ontology?

    - Read in *Designing for Care* The Straight and Narrow is the Path of Least Resistance, and I Believe, We Need Resistance, or at Least, We Need to Nuke Las Vegas First
    - Read Education in the World of ChatGPT
    - Read ChatGPT: Implications for Teaching and Student Learning
    - Read 10 Ways to Use ChatGPT for Web Design
    - Review and Prepare to Download and/or select a screenreader test and test your mock-up
    - Mock-Up a website using ChatGPT or Bard to create a stack for your domain or WYSIWYG site (include your video in the site).
        - Share Mock-Up with Classmates along with Screenreader-Test of Mock-Up in Class Db
    - Reflection Journal: Answer questions to reflect on Week 2
        - What is an Ontology and Why Should You Develop One?
        - How does an Ontology integrate/support SEO and what is SEO?
        - Is SEO relevant to educational websites?
        - How can AI help you generate a stack or ontology?
        - What can you crowdsource? (i.e. ontologies, tools)
        - Additional questions in prompt
- Week 3 of 3:
    - Read in *Web Writing* by A. Nicole Pfannenstiel Chapter 3 "Content Strategy and Content Management" pp. 43-60
    - Read in *Web Design for Educators* section "Writing for the Web"
    - Read *"Ontology and Folksonomy"*
    - Read "What's the Difference Between a Taxonomy and an Ontology"
    - Read "Tag Assessment: Using Tagging Technology for Learner Assessment" PDF Tag Assessment PDF
    - Read "What's a Repository" and watch lecture on how to set-up a basic repository content management system to catalogue learning artifacts and/or other articles.
    - Review various FREE repository options--determine if the type of site you need to make for your final should be a repository (a collection of resources)
        - Omeka
        - Merlot
        - Dspace
        - Collectionbuilder
        - Hyku
        - Wax
    - Post your original response to M8Db1: Scavenger Hunt for a Repository Collection of Interest
    - Create written content for your website. A single page on any subject. Use wireframing to structure how the page should look. Present wireframe and HTML file in the DB using the DB as your WYSIWYG *or* Post/upload to your primary website and share the link in the DB.

Module 9: De-Colonizing Web and App Development and Preparing for the Final Project [Weeks 12 - 13]

- Week 1 of 2:

    - Read "Indigenizing Wikipedia: Student Accountability to Native American Authors on the World's Largest Encyclopedia" by Siobhan Senier
    - Read the Wiki on "Wikispaces"
    - Read Article (copied to site) on Alternatives to WikiSpaces
    - Read "Our Digital History is at Risk"
    - Read "Could the Internet Archive Go Out like Napster"
    - Either read "The Role of Educational Content in a Digital Marketing Strategy" OR "The New Value of Educational Content Providers" (or both)
    - Read "Generative AI like MidJourney Creates Images Full of Stereotypes"
    - Watch "How to Use the Wayback Machine" (linked below)
    - Watch "How to Edit a Wikipedia Page" (linked below)
    - Review sections in *Designing for Care, UDL,* and *Web Development for Educators* sections you've already read in previous sections on "Web Writing" and on "Diversity, Equity, and Inclusion" (especially as regards BIPOC or Indigenous Peoples inclusivity
- Week 2 of 2:
    - Read the Explanation for your Final Project –Your personal website project
        - Determine what *type* of content-development you will be engaging (free website, hosted website, curated collection repository, lms page/s, WYSIWYG site, mobile app, etc)
    - Complete M9Db1: Scavenger Hunt, Practice, and Reflection Activity
        - Responses (if any)
    - Complete M9Db2: Review the Final Document and post an updated version of what you *think* you will do for your final project (at this point you may either use the Db to create a web page or you may choose to mock up a webpage in a tool or app of your choosing and point classmates to that. As with all assignments, the goal is both to demonstrate basic page-development skills while also responding to the prompt)
        - Respond to classmates (no minimum)--offer ideas about resources, *features,* applications, and modalities that might support their plan

Module 10: Final Production [Weeks 14 - Finals]

- Week 1 of 2:
    - Read and Respond: Understanding the difference between a website and a web application
    - Brief Demonstration: Designing web applications (basic skills)
    - Exam: HTML5 / CSS (and basics of programming) review/ open-book
- Week 2 or 2
    - Mock-Up and User-Testing: Create your final website mock-up or your Wire-frame (either option must have rich media content examples made by you as well as curated materials that you use within the limits of restrictions (FERPA, COPPA, TEACH Act, etc).
        - User-test your classmates' websites and provide feedback regarding resolution (re: web app vs. browser), accessibility, usability, and legalities)

Final:

Submit your final website (complete structure with a clear contextualized explanation of its structural uses and at least 8 content items (5 of which must be original); or wireframe (complete map of website content with at least 8 content example items (5 of which must be original) with clear explanations for the context

of each wireframes-element), integrating the feedback from your classmates' user-testing. Be sure to explain why you chose either a domain with full-stack development, a content management system, a repository, a learning management system, a WYSIWYG website generator, or another tool to serve your purposes regardless of whether you choose to generate a "real" website or a detailed wireframe of a "real" website.

Course Goals:

Instructional Objectives:

- Identify audience and purpose of your web or mobile project applications
- Become familiar with several framework to web design and content management
- Reorient yourself with the Worldwide web and the impact of the web on global interaction
- Investigate an array of free applications to create and integrate these into your unique projects and compare and contrast with full-stack options to determine your needs
- Explore principles of design, full-stack vs WYSIWYG web development, aspects of information security such as the Electronic Freedom Frontier, and Accessibility compliance via ADA and Voluntary Product Accessibility Template (VPAT) resources and tools to support your developments.

Student Learning Outcomes

SLOs will vary depending on course, and be linked to course objectives and expectations. The SLOs will be approved by the Program Coordinator before the course is taught.

As a result of taking this course, students will know or be able to:

1. Identify most appropriate option from multiple WYSIWYG web development software and develop a mixed media artifact
2. Create graphic, audio, and video media objects for implementation in web materials
3. Integrate preexisting social media applications to maximize sustainability features in your websites and/or mobile applications
4. Collect an annotated resource list of tools, services, references, and support utilities in the development of websites and mobile applications
5. Demonstrate the difference between front and back end web development
6. Explain the significance of information security and ADA compliance, along with other relevant policies and legalities that oversee educational web-resources in the development of digital materials
7. Identify, describe, and characterize the elements of mobile application design

How does the course explore the central questions?

Question	Depth of Engagement 0=not at all 1= introduction 2=moderate 3==extensive
Learning Environments: How do educators leverage technology to create environments that support the development of diverse skills, and emphasize challenging learning experiences?	**3–**Students create learning environments and public-facing assets/OERs/Collections and more to develop this response.
Teaching and Learning: How can technology enhance teaching and learning partnerships that support and promote innovative models of deeper learning?	**3–**Students use technology directly and in collaborations to promote innovative models by way of websites and/or mobile apps for deeper learning or ancillary learning goals.
Digital Citizenship: How can educators promote an understanding of the social, ethical and legal issues and responsibilities related to a globally connected society?	**3–**Students are exposed to an in-depth, application-level deep-dive into the experience and application of TEACH Act, Copyright compliance, ADA-compliance, Information Security, COPPA, FERPA, and many other critical guidelines for public-facing web content.
Professional Practice: How can educators develop and model pedagogical and andragogical principles of learning to promote professional growth and practice in a globally connected society?	**2–**Students have the ability to develop a website that has personal or professional meaning for their purposes that allow them to grow specifically along their own, personalized trajectory. They have the option to create a public-facing website or share a super-detailed wireframe, both with extensive content-development samples to demonstrate skill development.
Leadership: How can educators align vision, implementation, and practice to foster learning enhanced by technology?	**3–**Students in this class dig deeply into the concepts to develop specific, clear, but basic websites that will be used for a variety of causes. They identify the audience and purpose o their site and align this with optional tools to generate and share content broadly.

Grading and Course Expectations

Vary depending on course - to be approved by the Program Coordinator before the course is taught
All courses will use the following:

94 - 100	A	77 - 79	C+
90 - 93	A-	73 - 76	C

87 - 89	B+	70 - 72	C-
83 - 86	B		
80 - 82	B-	< 70	F

Grading:

Discussion Engagement……..	15%
Peer-Review and Reflection Activities……	10%
Mixed Media Activities/Contributions……..	10%
Scavenger Hunts, Projects, & Applications ……	40%
Final Project……..	25%
TOTAL……	100%

and honor the importance of the process of instructional design.

Discussion Engagement (15%). With each course module you will respond to discussion questions that examine issues related to the application and practice of web design

Peer Review and Reflections (10%).

*At its core, all design begins with an analysis of the audience and purpose of the project goals, and ultimately **reflects** on the overall process to iteratively improve the design.*

- Provide feedback for colleagues' learning project design schemes as they develop.
- Provide reflection on your contributions to your projects as they develop.
- *Self-Assessment Reflection* . After completing your major project, you will write a self-assessment (600-800 words) that reflects on your overall experience in the course.
    - What are three key lessons you learned?
    - What challenges did you face? How did you overcome them and/or why do some remain?
    - What are your next steps, either with respect to this project if you plan to continue it, or with respect to other projects that could benefit from this approach?
    - The next time you have an opportunity to begin a new project, how do you plan to proceed differently?

Mixed Media Activities/Contributions (10%). You will use free, self-identified tools (such as Canva, Loom, YouTube, Audacity, etc) to create mixed media elements to incorporate into your projects.

Scavenger Hunts, Projects, & Applications (40%). As you develop your eye for web and mobile development and integration, you will have a variety of experiential activities, including scavenger hunts, analyses of sites, mini-projects and application developments.

Final Project (25%). Using all of the skills you develop over the term, you will create your own, unique, goal-oriented website or mobile application for your final project. You will reflect on the activity and provide peer-review for your classmates' works as well.

Course Schedule:

Courses in the Instructional Technology programs follow academic year calendars and the summer session schedules used by the University of Maine.

Course Policies:

Courses are taught using modules that break down the larger course topic into smaller units. The course schedule will be approved by the Program Coordinator before the course is taught.

- All assignment details, descriptions, rubrics and associated points are posted in Brightspace.
- Your final grade will be based on your cumulative score on all assignments
- In addition to your required work there will be an active engagement element to your performance in each unit. Regular and meaningful participation is expected.
- All work is due on the assigned date, please be in contact in advance if there is an emergency to make other arrangements as I do not accept late submissions.
- Our learning environment will be open and inclusive - there will be an expectation of respect, acceptance and positivity.

Campus Policies

Academic Honesty Statement:

Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, or generated by software or systems without the explicit approval of the instructor, to fake experimental results,or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University. Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314 (*Date Issued: September 1, 2020): https://www.maine.edu/board-of-trustees/policy-manual/section-314/

Students Accessibility Services Statement

If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, um.sas@maine.edu, 581.2319, as early as possible in the term. Students may begin the accommodation process by submitting an accommodation request form online and uploading documentation at https://umaine-accommodate.symplicity.com/public_accommodation/ . Once students meet with SAS and eligibility has been determined, students submit an online request with SAS each semester to activate their approved accommodations. SAS creates an accessibility letter each semester which informs faculty of potential course access and approved reasonable accommodations; the letter is sent directly to the course instructor. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me privately as soon as possible.

Course Schedule Disclaimer (Disruption Clause):

In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Retaining Personal Copies of Assignments

If you wish to retain a personal copy of material you submitted through Brightspace, please do so before the end of the semester. You will not have access to a course's Brightspace site after you complete the course. You can store copies of material you wish to retain on Google Drive, your hard drive, or other media of your choosing. Other materials posted by your faculty may be found at the library.

Observance of Religious Holidays/Events:

The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical,

students should refer to the applicable policy in place by the employer or site.

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For confidential resources on campus: **Counseling Center: 207-581-1392 or Cutler HealthCenter: at 207-581-4000.**

For confidential resources off campus: **Rape Response Services**: 1-800-871-7741 or **Partners for Peace:** 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For support services on campus: **Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911**. see the Title IX Student Services website for a complete list of services (open in a new window) . Also, Student Wellness Resource Center (opens in a new window). Visit the Title IX Student Services website at umaine.edu/titleix/ for more information.

FSN - 540 - Advanced Clinical Topics

Graduate Course Modification Form - 2024/25 AY

General Catalog Information

Graduate Course Modification Form

Read before you begin

FILL IN all fields required marked with an * after importing data.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

*Faculty who are converting a course for online delivery, or making substantive changes to an existing course delivered online, are strongly encouraged to work with the Center for Innovation in Teaching and Learning (CITL) on those modifications: https://umaine.edu/citl/instructional-design-2/

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the **3rd of each month.** Please refer to the Graduate School website for the Curriculum Committee meetings schedule as well as instructions on completing this form. [https://umaine.edu/graduate/facultystaff-resources/curriculum-committee/]

REASON FOR COURSE MODIFICATION:* Current prerequisite prevents online MS students from being able to register. As admitted graduate students in the FSN MS or the FNS PhD, students have the preparation to be successful in this class.

MODIFICATION:*

- [ ] Designator Change
- [ ] Credit Change
- [ ] Cross Listing
- [ ] Number Change
- [ ] Title Change
- [ ] Description Change
- [x] Prerequisite Change
- [ ] Addition of Electronic Learning Component*
- [ ] Conversion of an existing on-site Course to an online Course*

Department* School of Food and Agriculture

EFFECTIVE SEMESTER:

Semester* Fall

Year* 2025

CATALOG DESCRIPTION:

Current Course Designator* FSN

Current Course #* 540

Proposed Course Designator

Proposed Course #

If the Course will be cross listed, please identify below what the current Undergraduate or Gradute Course Number is and what the proposed Graduate Cross Listing Course Number will be.

Current Undergraduate or Graduate Course Number

Proposed Graduate Cross Listing Course Number

Current Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters).* Advanced Clinical Topics

Proposed New Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters)

Current Long Course Title* Advanced Clinical Topics

Proposed Long Course Title

Current Course Description* A critical evaluation of medical nutrition therapy in the inpatient clinical setting. Application of the current medical literature to practice decisions. Nutritional goals for a variety of medical

conditions are discussed.

Proposed Course Description

Current Prerequisite(s) FSN 420

Proposed Prerequisite(s) Graduate Standing in FSN or FNS or permission

Current Corequisite(s)

Proposed Corequisite(s)

Definition of Credit Hours: Go to https://umaine.edu/graduate/students/progress/enroll/#define-credit-hour for the definition of a credit hour at UMaine.

Current Credit Hours:* 3

Proposed Credit Change

If the course designator or course number is being changed, please list any courses for which this course is a prerequisite:

When will this course typically be offered ☑ Fall ☐ Summer ☐ Spring ☐ Alternating ☐ Variable

Can this course be repeated for credit? ○ Yes ◉ No

If YES, total number of credits allowed:

If YES, total number of completions allowed:

Can students enroll multiple times in term? ○ Yes ◉ No

Instruction Mode: Select the mode of instruction for this course. Review the instruction modes documentation provided by UMS. https://gojira.its.maine.edu/confluence/display/DARTS/Instruction+Modes+Documentation.

☐ Distance Synchronous Learning ☐ Hybrid/Blended ☐ Hyflex ☐ In-Person
☑ Online (Asynchronous)

COURSE RESOURCES

Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?

- ( ) Yes
- (•) No

If additional resources are needed, outline them below:

Will instructional cost for this course proposal involve financial support from the Division of Life Long learning?*

- [ ] Yes
- [x] No

MAT - 699 - Graduate Thesis/Research

Graduate Course Modification Form - 2024/25 AY

General Catalog Information

Graduate Course Modification Form

Read before you begin

FILL IN all fields required marked with an * after importing data.

ATTACH supporting documentation.

LAUNCH proposal by clicking Validate and Launch at the top. Once the proposal has been launched, approve the proposal to move the proposal forward in the workflow.

For assistance in completing this form or if you have any questions, email um.catalog@maine.edu.

*Faculty who are converting a course for online delivery, or making substantive changes to an existing course delivered online, are strongly encouraged to work with the Center for Innovation in Teaching and Learning (CITL) on those modifications: https://umaine.edu/citl/instructional-design-2/

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the **3rd of each month.** Please refer to the Graduate School website for the Curriculum Committee meetings schedule as well as instructions on completing this form. [https://umaine.edu/graduate/facultystaff-resources/curriculum-committee/]

REASON FOR COURSE MODIFICATION:* Fixing a typo

MODIFICATION:*
- ☐ Designator Change
- ☑ Credit Change
- ☐ Cross Listing
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Addition of Electronic Learning Component*
- ☐ Conversion of an existing on-site Course to an online Course*

Department* Mathematics and Statistics

EFFECTIVE SEMESTER:

Semester* Fall

Year* 2025

CATALOG DESCRIPTION:

Current Course Designator* MAT

Current Course #* 699

Proposed Course Designator

Proposed Course #

If the Course will be cross listed, please identify below what the current Undergraduate or Gradute Course Number is and what the proposed Graduate Cross Listing Course Number will be.

Current Undergraduate or Graduate Course Number

Proposed Graduate Cross Listing Course Number

Current Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters).* Graduate Thesis/Research

Proposed New Short Course Title (The short course title will reflect on the Class Section in MaineStreet and on the student's transcript. Max 30 characters)

Current Long Course Title* Graduate Thesis/Research

Proposed Long Course Title

Current Course Description* Graduate thesis or research conducted under the supervision of student’s advisor.

Proposed Course Description

Current Prerequisite(s)

Proposed Prerequisite(s)

Current Corequisite(s)

Proposed Corequisite(s)

Definition of Credit Hours: Go to https://umaine.edu/graduate/students/progress/enroll/#define-credit-hour for the definition of a credit hour at UMaine.

Current Credit Hours:* Ar

Proposed Credit Change Variable

If the course designator or course number is being changed, please list any courses for which this course is a prerequisite:

When will this course typically be offered ☐ Fall ☐ Summer ☐ Spring ☐ Alternating ☑ Variable

Can this course be repeated for credit? ◉ Yes ○ No

If YES, total number of credits allowed: infinite

If YES, total number of completions allowed: infinite

Can students enroll multiple times in term? ◉ Yes ○ No

Instruction Mode: Select the mode of instruction for this course. Review the instruction modes documentation provided by UMS. https://gojira.its.maine.edu/confluence/display/DARTS/Instruction+Modes+Documentation.

☐ Distance Synchronous Learning ☐ Hybrid/Blended ☐ Hyflex ☐ In-Person
☐ Online (Asynchronous)

COURSE RESOURCES

Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?

- ○ Yes
- ○ No

If additional resources are needed, outline them below:

Will instructional cost for this course proposal involve financial support from the Division of Life Long learning?*

- ☐ Yes
- ☑ No