

Purdue University
ECE301: Signals and Systems
Spring 2018

Instructor: Mireille (Mimi) Boutin

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Office Hours: Monday 8:30 to 9:20
Wednesday 8:30 to 9:20
Friday 8:30 to 9:20

Teaching Assistant: Deena Alabed

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References:

- “*Fill in the blank Notes for ECE301 Spring 2018*,” by M. Boutin, available at Boiler Copy Maker, PMU room 186. (Required)
- “*Signals and Systems*,” by Oppenheim and Wilsky with Nawab, 2nd Edition. (Not required)
- “*MATLAB: Student Version*,” The MathWorks, Inc. (Not required).

Prerequisites:

A familiarity with complex numbers and calculus, including power series; a working knowledge of MATLAB.

Course Wiki/Webpage:

https://www.projectrhea.org/rhea/index.php/2018_Spring_ECE_301_Boutin

Courses Policies

Attendance Policy Students are expected to attend every lecture. However, it is recognized that, very occasionally, it may be necessary for a student to be absent from class for personal reasons beyond his/her control (e.g., serious illness, family emergency, bereavement, etc.). Missing class is only acceptable if you have such a serious reason beyond your control. We trust students' honesty and sense of ethics, and thus require no documentation or justification for missing class. Students who miss class are responsible for making up the material on their own by reading the references listed in the course schedule.

Classroom Rules Unless prior arrangement has been made with the instructor, cell phones and other communication devices must be turned off and stowed

away during class. Please respect your instructor and your fellow classmates. Students who act in a disruptive or disrespectful manner (e.g., arriving late, texting, sending email, surfing the web, watching movies, talking, etc.) will be asked to leave the classroom.

Policy about sharing course material All course material is copyrighted. Reproduction, sharing, and posting (e.g. on the Internet) is prohibited without an explicit agreement with the copyright holder. This includes course notes (including your own, as they are derivative work of copyrighted course material), homework questions, and exams. Taking pictures or making audio/video recording of the lectures is prohibited without the instructor's prior approval.

Grade

Your final grade will be computed as follows:

Quiz	5% (worst score dropped)	No Make up.
Homework	5% (worst score dropped)	No late hw accepted.
3 Evening Exams	20% each	No make up.
Final	30%	Used to replace exam grades when missing.
Bonus point project	3%	

Grades will be uploaded on Blackboard. For a re-grade of any homework, exam or quiz, you must submit a written request to your instructor. The deadline for all regrade requests except for the final exam is 17:00 Friday April 27, 2018. The letter grades cut offs for the course will be set to represent the extent to which the course outcomes have been achieved. In particular, all students who do not meet the lowest threshold of competence for every course outcome will be assigned a failing grade (F). Conversely, all students who meet the highest threshold for every outcome will be assigned an A grade. Plus/minus grades will not be assigned.

Homework

- Homework will be assigned approximately weekly.
- Hard copies of the homework assignments and solutions will be distributed in class.
- **No late homework will be accepted.** However, your worst homework score will be dropped.
- It is ok to discuss your approach to solving the problems with a friend or on Rhea, but the write-up of the solutions you hand in must be your own. Be careful not to plagiarize! Cite all your sources and write the name of the persons you collaborated with on the cover page of your homework. Do not look at answers from the Internet or from the graded copy of a student from a previous year: doing so would constitute plagiarism. Plagiarism

will be punished with a failing grade (F) for the course, and reports to the Assistant Dean of Students and to the ECE Assistant Head for Education will be filed. The office of the dean of students may decide that further punishment is necessary.

Quizzes

- Unannounced quizzes will be conducted in class.

Intra-semestrial Exams

- The course material is divided into three parts: each part will be tested in a separate, traditional style intra-semestrial exam.
- All intra-semestrial exams will be held in the evening. Dates are to be announced shortly.
- There will be no make up intra-semestrial exams. If you miss an exam for any reason, your final exam grade will automatically be used to replace this exam grade. (No justification needed.)
- Scratch paper will be included with each exam; the work on your scratch paper will not be graded.

Final Exam

- The final exam will be a comprehensive, traditional style (not multiple choice) exam. Location and date to be announced later.
- Make up finals will only be given in **exceptional** circumstances and only with **documented** reasons. At the discretion of the instructor, a make up final may be given in oral form.

Bonus Point Project

Each student has the opportunity to earn up to a 3% bonus on their course grade by contributing a Rhea page on a subject related to signals and systems.

- To pick a subject, simply write your name/nickname next to it on the course wiki.
- In order to edit the wiki, you must be logged in to the Project Rhea website. You can log in using your CAREER account credentials. If you would prefer to use an anonymous log in, please contact the course supervisor.
- Do not simply copy the lecture notes. The content of your project must be your own. In particular, all text must be your own words and all graphs must have been created by you. Modifying someone else's text

or someone else's graph is plagiarizing. Do not use copyrighted pictures or videos without explicit permission from the copyright owner. **Do not plagiarize!!!**

- If you are describing your project in text form (as opposed to a video), you must write your project description directly on a Rhea page using the Mediawiki markup language Wikitext. Mathematical equations should be written using latex code. Do not post a link to a word document or pdf file.
- If you are describing your project using a video, send your video to the instructor to be uploaded onto the Project Rhea Youtube channel. You may want to use Filelocker for the file exchange (filelocker.purdue.edu).
- The deadline for contributing a project is at midnight on Sunday April 22, 2018.

Academic Honesty

- In order to prevent cheating, we ask that you keep your eyes on your sheet at all times during tests. **Looking around is forbidden.**
- Electronic devices (e.g., calculators, cell phones, watches) are strictly forbidden during tests. They must be turned off and put in your backpack, not in your pocket!
- When the test time is over and the supervisor announces that time is up, you **must stop writing**. The exams/quiz of any student who is caught writing after time is up will receive a grade of zero.
- We keep a copy of all graded exams in order to compare them with any exam brought in for a grade revision. Any student who alters their work post grading and asks for a grade revision **will be caught** and will earn an F for the course.
- Please consider this student-initiated honors pledge: *“As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.”*

ADA Notice

Purdue University is required to respond to the needs of the students with disabilities as outlined in both the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 through the provision of auxiliary aids and services that allow a student with a disability to fully access and participate in the programs, services, and activities at Purdue University.

If you have a disability that requires special academic accommodation, please make an appointment to speak with me within the first three (3) weeks of the

semester in order to discuss any adjustments. It is important that we talk about this at the beginning of the semester. It is the student's responsibility to notify the Disability Resource Center (<http://www.purdue.edu/drc>) of an impairment/condition that may require accommodations and/or classroom modifications.

Nondiscrimination

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Executive Memorandum No. D-1, which provides specific contractual rights and remedies. Any student who believes they have been discriminated against may visit www.purdue.edu/report to submit a complaint to the Office of Institutional Equity. Information may be reported anonymously.

Emergency Procedures

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. In such an event, information will be provided through the Course Wiki, email, or Blackboard.

ABET

The outcomes for ECE301 are:

- (a) an ability to classify signals (e.g. periodic, even) and systems (e.g. causal, linear) and an understanding of the difference between discrete and continuous time signals and systems. [1,2;a]
- (b) an ability to determine the impulse response of a differential or difference equation. [1,2;a]

- (c) an ability to determine the response of linear systems to any input signal convolution in the time domain. [1,2,4;a,e,k]
- (d) an understanding of the definitions and basic properties (e.g. time-shifts, modulation, Parseval's Theorem) of Fourier series, Fourier transforms, bilateral Laplace transforms, Z transforms, and discrete time Fourier transforms and an ability to compute the transforms and inverse transforms of basic examples using methods such as partial fraction expansions. [1,2;a]
- (e) an ability to determine the response of linear systems to any input signal by transformation to the frequency domain, multiplication, and inverse transformation to the time domain. [1,2,4;a,e,k]
- (f) an ability to apply the Sampling theorem, reconstruction, aliasing, and Nyquist theorem to represent continuous-time signals in discrete time so that they can be processed by digital computers. [1,2,4;a,e,k]