

**Syllabus**  
**ECE 471B Semiconductor Junctions**  
**Spring 2021**  
**February 22- April 4**

**Instructor:** Carmen S. Menoni  
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**Class Times:** TR, 9:30am - 10:50am, B3  
**Office:** Engineering C 101E  
**Office Hours:** By appointment – and via zoom – Send an email to Prof. Menoni

**Text:** "Semiconductor Physics and Devices"  
Donald A. Neamen, Fourth Edition (Chapters 5-8)

**Course description:**

This course introduces basic concepts of carrier transport phenomena in a semiconductor, understanding of the behavior of excess carriers and the basics of the pn junction electrostatics and current-voltage behavior.

**Course Credits:** 1  
**Prerequisites:** ECE331 with a minimum grade of C; ECE471A, may be taken concurrently

**Grading and Exams:**

Homework Submission	10%
Quizzes	65%
In class HW discussion	25%

**Homework** will be assigned once a week. It will not be graded, it will be checked for completion. There will be in-class discussion of the homework that is graded.

**Quizzes.** There will be a CANVAS Quiz provides a formula sheet for use during tests.

**Material for the class** is stored in CANVAS.

**The pace of this class requires student read each chapter before they are discussed in class**

### Course Outline

Lecture No.	Week No.	Chapter	Topic
1	1	4	Review
2	1	5	Carrier Transport Phenomena
3	2	5	Carrier Transport Phenomena
4	2	6	Nonequilibrium Excess Carriers in Semiconductors
5	3	6	Nonequilibrium Excess Carriers in Semiconductors
6	3	6	Nonequilibrium Excess Carriers in Semiconductors
7	5	7	PN Junction
8	5	8	PN junction Charge transport
9	6	8	PN Junction Charge transport

### Class Etiquette

Phones and other electronic devices must be turned off at the beginning of the class and remain off during the duration of the class. This applies in classroom and the virtual space.