

The Ohio State University
Department of Electrical Engineering
Autumn 2002 Quarter

Date: September 26, 2002

New Course Number: 835.02

Course Name: Special Topics on Organic Conducting Devices

Instructor: Paul R. Berger (EE/Physics)

Place: Mendenhall Laboratory, Room 0173

Time: Thursdays only, 2:30-5:18 PM

Catalog Description: This course will focus upon the latest developments in the organic conducting polymer field. The course will be seeded by lectures from the instructor, but then followed up by a student paper discussion group. Students will gather topical papers based upon the previous week's discussion and assignment and then these will be shared with the entire class for the following week and read prior to the next class meeting.

Pre-requisites: Inorganic chemistry, physics of semiconductor devices, materials science for engineers.

Courses that require this as a direct: None.

Class Meeting Pattern: Once a week for 3 hours to enable literature search to take place and gathered papers to be read. A break will be inserted between the lecture and the discussion.

Textbook: None. Current journals instead.

Course Objectives: To gain a fundamental understanding of the field of organic conducting polymers and their potential impact.

Grading Assignments:

Discussion	60%
Final Report	40%

Discussion:

A substantial portion of your grade will be based upon your active participation in class discussions. This includes both how vigorously you seek out new articles or facts and bring this information forth during class discussions. I wish to promote lively discussions in class. In many cases, we will discuss the latest developments in optoelectronics in which there are no correct answers, only opinions.

Final Paper:

Instead of a final exam a comprehensive paper on any topic related to this course (either materials or devices) will be required. The final paper should be an in-depth study of the latest developments in that area and have an extensive bibliography to support all statements. I'm looking for a least 30-40 references. I expect the paper to be **at least** 10-12 pages of text, not including figures or bibliography.

Final Exam: None.

**The Ohio State University
Department of Electrical Engineering
Autumn 2002 Quarter**

Date: September 26, 2002

New Course Number: 835.02

Course Name: Special Topics on Organic Conducting Devices

Instructor: Paul R. Berger (EE/Physics)

Place: Mendenhall Laboratory, Room 0173

Time: Thursdays only, 2:30-5:18 PM

TOPICS AND (# OF LECTURES)

1. Introduction and basic highlights (1)
2. Basic overview of the field (1)
3. Conducting polymers & organic small molecules (Structure, Optical & Electrical Properties) (1)
4. Electrodes and interfaces (1)
5. Organic light emitting diodes, incl. transport, triplet harvesting and carrier injection (1)
6. Organic transistors (1)
7. Organic lasers, detectors & photovoltaics (1)
8. Organic displays (1)
9. Spin Casting, ink-jet printing, screen printing (1)
10. Multi-layer devices (1)
11. Packaging, Testing, Lifetimes (1)
12. Commercial Products and Economic Forecast (1)