

## EE4394/RSRC4033 UNDERGRADUATE RESEARCH

Research Mentor: Dr. Benjamin C. Flores  
Office: Engineering Complex  
Laboratory: Engineering 401  
Meeting Hours: Fridays, 10:00 AM to 11:30 AM

### Preparatory Readings:

Russell, S. H., Hancock, M. P., & McCullough, J. (2007). Benefits of undergraduate research experiences. *Science*, 316, 548–549.

Carrero-Martinez, F. A. (2011). Rethink summer student research. *Science*, 334, 313.

*Catalog Description. Undergraduate Research Undergraduate students conduct research work under the mentorship of a faculty member from the ECE Department. Students are expected to devote at minimum 9 hours of work per week of effective research. Faculty approval required prior enrollment.*

**Goal:** This semi-structured course will provide students an opportunity to join a research team and participate in authentic research, developing a professional relationship with a research mentor and gaining a deeper insight about their field of study.

**Activities:** Once a research theme is agreed upon by the student (protégé) and the research mentor, the protégé will review and discuss relevant literature that will serve as the basis of the research project. The protégé will then develop a research question (how) and conduct work to answer it, following a well-defined method. The protégé will be asked to share weekly progress reports with the research group. When the research is complete, the protégé will prepare an abstract and a research poster and present work in a conference setting.

**Learning Outcomes.** By the end of the research experience the student will be able to:

1. Define a research question or hypothesis
2. Conduct a comprehensive literature review of a research topic
3. Develop a rigorous methodology to conduct experiments
4. Collect and analyze experimental data
5. Draw conclusions and explain the significance of results
6. Communicate research work in an undergraduate research meeting

**Final Grade.** All students participating in this course are expected to complete the project in 10 to 12 weeks. If additional time is needed to complete the project, the student may enroll in RSRC 4033 in a subsequently semester to complete and present the work before a review panel.