1. Instructor: Donald Butler; [http://www-ee.uta.edu/eedept/Faculty/Dbutler.htm](http://www-ee.uta.edu/eedept/Faculty/Dbutler.htm)
2. Office Location: NanoFab 202B; Mailbox: 19072
3. Phone: (817) 272-1305; Fax: (817) 272-7458
4. Email: dbutler@uta.edu
5. Office Hours: M 9:30-10:30, Tu 10:30-11:30, W 9:30-10:30
6. EE5381-001 Foundations in Semiconductors
7. Course Meeting: MW1:00-2:20 NH109
8. Course Description: A study of basic principles of semiconductors that have direct applications on device operation and fabrication. The course covers basic semiconductor properties, elements of quantum mechanics, energy band theory, equilibrium carrier statistics, carrier transport and generation-recombination processes, semiconductor characterization techniques using resistivity measurement, mobility measurement through Hall effect, defect characterization, carrier lifetime measurement and optical characterization.
9. Student Learning Outcomes: Introduce graduate students to properties of semiconductors and selected semiconductor characterization techniques. Students will learn how to solve the one-dimensional Schrodinger equation for electron transport properties, energy band theory, the fundamentals of carrier statistics and carrier transport in semiconductors, generation recombination statistics and carrier lifetimes, electrical and optical properties of semiconductors, the continuity equation and its solution in typical device situations, beyond the drift diffusion model for nanodevices.
10. Requirements: no graduate level prerequisites, no special meetings.
11. Required Text: 

   References (not required):


12. Descriptions of Major assignments and Examinations:

   **Midterm Examinations:**
   1 midterm exam

   **Final Examination:** Final Exam Monday Dec. 13, 11-1:30

   **Other Graded Assignments (Homework / Projects / Labs / Research Papers):**
   Homework roughly every other week, Term Paper due at end of semester
13. **Grading Policy:** Homework 10%; 1 Midterm Exam 25%; 1 Term Paper 25% Final Exam 40% (may be change by instructor)
14. **Attendance:** Attendance is required.
15. **Drop Policy:** Drop policy: As per University guidelines. See the Registrar’s Bulletin or the University Calendar in the front part of the UTA catalog for drop dates.
16. **Link to Additional Course Material:** [http://webct.uta.edu/webct/public/home.pl](http://webct.uta.edu/webct/public/home.pl)
   **WebCT Important Note:** The default password format for students that have never used WebCT. The new format matches the format that OIT user ID and password.

17. **TA:** TBA

18. **Missed Exams, Quizzes and Makeup Work:** Late homework will be penalized at 50% per day late. Homework is due at the beginning of class. Missed exams and quizzes will be given a makeup only for serious illness or emergency and require a doctors certificate or similar written documentation. Students requiring a makeup exam must make an appointment as soon as possible after the scheduled exam date.

19. **Americans With Disabilities Act**

   The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112 -- The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act - (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

   As a faculty member, I am required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

   If you require an accommodation based upon disability, please meet with me in my office during the first week of classes.

20. **Final Review Week**

   A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week.

21. **Academic Dishonesty**

   It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or
expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, and the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22)

22. Student Support Services Available

The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

23. E-Culture Policy:

When sending an email to me, please put the course number as part of the email subject so that I can give it prompt attention.

The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at www.uta.edu/email. New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.