

**The University of Texas at Dallas**  
**Department of Electrical Engineering**

**EE 4340 Analog Integrated Circuit Analysis and Design**

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**Course Information:**

Course Instructor: Prof. Brian Ma  
Office Phone: (972)883-5558  
Email: d.ma@utdallas.edu  
Lecture Time: M/W 11:30am-12:45pm @ ECSN 2.120  
Office Hours: W 3:30-5:30pm @ ECSN 3.604  
Teaching Assistant: Yingping Chen (Email: yxc152330@utdallas.edu)  
TA Office Hours: T/TH 9:00-10:00am @ ECSN 4.324

Textbook: Fundamentals of Microelectronics by B. Razavi (Wiley, 2nd Edition), ISBN 978-1-118-15632-2.

References: On-line class notes;  
Design of Analog CMOS Integrated Circuits by B. Razavi, McGraw-Hill, ISBN: 0072380322;

Prerequisites: EECE 3311 or equivalent

Class Website: [www.utdallas.edu/~d.ma/4340.htm](http://www.utdallas.edu/~d.ma/4340.htm)

**Course Objectives:**

To provide principles of analog integrated circuit analysis and design knowledge, which are required in analog IC design industry and research. Contents of the class include large and small signal behavior of MOS transistors, single-stage amplifiers, differential amplifiers, current mirrors, amplifier basics, input offset voltage and feedback, and the introduction to most useful analog circuit blocks design.

**Course Learning Outcomes:**

- Ability to analyze large-signal and small-signal characteristics of single-stage amplifiers intuitively
- Ability to analyze and design current mirrors
- Ability to analyze and design differential amplifiers
- Ability to analyze frequency response of amplifiers
- Ability to understand and analyze feedback topologies

**Evaluation:**

Homework & Mini Projects	30%
Exams	60%
Quizzes & Professionalism	10%

Homewo

In general, homework will be assigned when a chapter is completed. You will be given at sufficient time to complete each home, so **no late submission is allowed.** The due date of each homework will be specified when the homework is announced. The homework solution will be posted on class website.

#### **Exams:**

All exams are closed-book, closed-notes with one-page, letter-size, single-side formula sheet allowed. Calculators cannot be used in the programmable mode in the exam.

#### **Quizzes & Professionalism:**

There will be several short quizzes to be conducted in class. In general, the questions in a quiz are fundamental and directly related to the class material that has been recently covered. The purpose of the quizzes is to help the students further understand the class materials with active classroom participation. A quiz is usually conducted in class either before or after a lecture session.

The professionalism portion of your grade will basically depend on your adherence to the course policies outlined in this document. Smoking, drinking and eating is prohibited in the classroom by the University rules. Please switch off your cell phones during the class. Attendance is important, since each student is responsible for all announcements and materials covered in each class. Your punctual arrival will be appreciated. If you cannot attend some classes for acceptable reasons such as illness or business, official written certificate is required to submit in advance.

#### **Code of Academic Integrity:**

Violations of this code can lead to sanctions and even expulsion from the University. The guiding principle is that submitted work must be the student's own. However, the complete implications of the code are explained on the University's web page at: <https://www.utdallas.edu/conduct/integrity>.

#### **Withdrawals:**

If you wish to withdraw, correct procedure must be followed. Simply stopping attendance does not drop you from the course. If you do not withdraw according to procedure, your name will appear on the final grade report with a failing grade.

#### **Incompletes:**

A course grade of "incomplete" (I) can be awarded only in cases of documented hardship, such as a medical or family emergency.

#### **UT Dallas Syllabus Policies and Procedures:**

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus including Sharing Confidential Information pursuant to Title IX and the link to UT Dallas' Campus Carry webpage.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.