

## KINE 5390 Computer Programming for Biomechanics

### Syllabus

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Instructor: Dr. Mark Ricard  
Office: MAC 230  
Office Phone: 817-272-0764

Location & Time: MAC 232, Thr 4:00-3:50

**Faculty Profile:** <https://www.uta.edu/mentis/profile/?445>

**Office Hours:** By appointment

KINE 4390/5390 Computer Programming for Biomechanics  
An introduction to software development for mobile devices and to biomechanical software programming using android software development kit. Topics include using accelerometers, cameras, gyroscopes, and magnetometer for motion analysis.

Required Books

[http://www.tutorialspoint.com/java/java\\_object\\_classes.htm](http://www.tutorialspoint.com/java/java_object_classes.htm)

Bill Phillips, Chris Stewart, Brian Hardy & Kristin Marsicano. [Android Programming The Big Nerd Ranch Guide](#). 2<sup>nd</sup> edition. 2015, ISBN 978-0134171456.

Required Hardware: Android phone with accelerometer, gyroscope and magnetometer.

Course Objectives:

After completing this course the student should be able to:

1. Develop a custom user interface for android mobile devices.
2. Develop persistent objects that retain data from previous sessions.
3. Design a variety of applications that utilize accelerometers and gyroscopes on android mobile devices.
4. Design custom sensor applications that utilize sensor fusion to improve sensor accuracy.

Aug 24	Install Java developer's kit, and android programmer's development kit. Java tutorial I
Aug 31	Java tutorial II
Sept 1	Android Programming Chapters 1-5
Sept 8	Android Programming Chapters 6-8
Sept 15	Android Programming Chapters 9-11
Sept 22	Android Programming Chapters 12-14
Sept 29	Android Programming Chapters 15-17
Oct 6	Android Programming Chapters 18-20
Oct 13	Android Programming Chapters 21-23
Oct 20	Android Programming Chapters 24-26
Oct 27	Android Programming Chapters 27-29
Nov 3	Android Programming Chapters 30-32
Nov 10	Android Programming Chapters 32
Nov 17	Android Programming Sensor Development 1
Dec 1	Android Programming Sensor Development 2
Dec 8	Android Programming Sensor Development 3

## Grading

Grades in this course will be based on the following:

Weekly Programming Assignments (13):	70%
Final Software Project	30%

**Attendance Policy:** At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this course I will allow students to attend class at their own discretion. Iclicker>2 quizzes will be given daily in lecture and lab. All missed quizzes will be assigned a zero.

**Make-up Exams:** If you miss an exam due to illness or a planned trip it is your responsibility to arrange a make-up exam.

**Expectations for Out-of-Class Study:** Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period.

After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Mark D. Ricard*

**Student Support Services:** UT 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. Resources include tutoring, major-based learning centers,

developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**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 syllabus*. 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. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, [which is located on each side at the front of MAC 206, and the back center and south side of the rear of the classroom](#). When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Faculty members should feel free to incorporate any of the following information into your course syllabus or other course materials.

- Library Home Page..... <http://www.uta.edu/library>
- Subject Guides ..... <http://libguides.uta.edu>
- Subject Librarians ..... <http://www.uta.edu/library/help/subject-librarians.php>
- Database List..... <http://www.uta.edu/library/databases/index.php>
- Course Reserves..... <http://pulse.uta.edu/vwebv/enterCourseReserve.do>
- Library Tutorials ..... <http://www.uta.edu/library/help/tutorials.php>

Connecting from Off- Campus..... <http://libguides.uta.edu/offcampus>

Ask A Librarian ..... <http://ask.uta.edu>

The following URL houses a page where we have gathered many commonly used resources needed by students in online courses: <http://www.uta.edu/library/services/distance.php>.

The subject librarian for your area can work with you to build a customized course page to support your class if you wish. For examples, visit <http://libguides.uta.edu/os> and <http://libguides.uta.edu/pols2311fm> . If you have any questions, please feel free to contact Suzanne Beckett, at [sbeckett@uta.edu](mailto:sbeckett@uta.edu) or at 817.272.0923.

<p><b>Emergency Phone Numbers:</b> In case of an on-campus emergency, call the UT Arlington Police Department at <b>817-272-3003</b> (non-campus phone), <b>2-3003</b> (campus phone). You may also dial 911.</p>
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