## Computer Graphics Syllabus

<table>
<thead>
<tr>
<th>Course: CS 4/57101</th>
<th>Fall 2008</th>
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<tbody>
<tr>
<td>Call Number: 14109/14111</td>
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<tr>
<td>Time: 5:30-6:45pm tt</td>
<td>Location: 115 MSB</td>
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<tr>
<td>Arden Ruttan</td>
<td>Office: 270</td>
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<tr>
<td>Office Hours: 4:30 - 5:30pm M-H and by appointment</td>
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<tr>
<td>Grader: Debbie Stoffer</td>
<td>Mail address: <a href="mailto:dstoffer@cs.kent.edu">dstoffer@cs.kent.edu</a></td>
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<tr>
<td>Office: 115MSB</td>
<td>Office Hours: to be announced</td>
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### Goal:

The goal of this course is to provide an introduction to the theory and practice of computer graphics.

### Prerequisites:

The course will assume a good background in programming in C or C++ and a background in mathematics including familiarity with the theory and use of coordinate geometry and of linear algebra such as matrix multiplication.

### Course Content:

Course Material (Chapters 1-10,13 of the class text):


2. Graphics Programming : Getting started with OpenGL.

3. Input and Interaction in OpenGL.

4. Geometrical Objects and Transformations in 2D and 3D: Objects representation, Coordinates transformation, windows and viewports.

5. Viewing in 3D: Orthogonal and projective views, hidden surface removal.


7. From Vertices to Fragments: Graphics pipeline, rasterization, color system.

8. Texture Mapping.

and possibly one or more from the following in less detail:


Grading:

Grades will be assigned according to the following scale:

- A 90-100.
- B 80-89.
- C 70-79.
- D 60-69.
- F 0-59.

Grade Calculations:

- Midterm 20%.
- Final 20%.
- Class Assignments 60%.

Note: Assignments will primarily be programming assignments requiring implementation of applications employing the theory covered in the lectures and the books. There will however be some theoretical homeworks and questions as well. Students are reminded that completion of both theory and programming parts of the homework are necessary to achieve a good grade.

Cheating and Plagarism

Please note the University Policy on Cheating and Plagarism
Students with Disabilities:

University policy 3342-3-18 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Disability Services (contact 330-672-3391 or visit www.kent.edu/sds for more information on registration procedures).
CS 49901 11952

This course is an integrative experience that brings together all components of the undergraduate computer science curriculum in an applied, hands on real world setting. The course is three credits lecture and one credit lab. Prerequisite: CS 45201, 43901, 33006, 43005.

In particular, we will work in project teams to design and implement middleware for cluster computing

Course Requirements

- Working in a group (3-4 members) design, implement, and demonstrate a computer cluster middleware project for computational steering. The Wikipedia definition for middleware is “computer software that connects software components or applications. The software consists of a set of enabling services that allow multiple processes running on one or more machines to interact across a network.” The software components that we will be working with are OpenMPI and Chromium. A computational steering environment is a set of tools to enable a user to interact with and change the execution behavior of a program while it is running.
- Project teams will produce an initial report describing their project, its goals and a time line for its implementation. Over the course of the semester that report will be update with completed software and documentation. Reports are submitted as wiki pages. The class wiki is capstone.cs.kent.edu/mediawiki.
- Approximately every two weeks each team will present a progress report to the classes discussing what they have accomplished and discussing any revisions in project time lines and goals. The project reports will account for 85% of the class grade. They will be posted on the wiki and given verbally in class. The grade for a project report will be determined by quality of the implementation and the clarity of the report. Each member of the team will be expected to present part of the report.
- Class and Lab Participation (lab interactions, lab productivity, class discussions, finding solutions to posted problems, etc): 15% of the grade.

**INSTRUCTOR**

- Instructor: Arden Ruttan, 270 MSB. Phone 29066. User ID: ruttan. It is best to send me email when you wish to contact me.

- Office Hours: 6:45-7:30 T, 3:30-4:40 H and by appointment.

**Lab Instructor**

- Andrew Sutton

- www.cs.kent.edu/~asutton

**Class Notes**

Time: 2:15-3:30 TH MSB 276.

**Academic Honesty**

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CS 43203 11984

Window and Unix operating system APIs: manipulating system processes, system io, system permissions, files, directories, signals, threads, sockets, terminal, etc. Prerequisite: CS 33211. Students are expected to have a basic knowledge of the C programming language, in addition, an intermediate knowledge of the Unix Operating System is assumed.

Textbook

Understanding UNIX/LINUX Programming: A Guide to Theory and Practice, Bruce Molay

Supplemental Texts include:

- Windows System Programming, 3rd Edition, Johnson M. Hart. This is the class reference for Win32/Win64 programming. Available on Safari
- Advanced Programming in the Unix Environment, W. Richard Stevens, Stephen A. Rago. This is the Standard Reference for Unix System Programming

- A good shell reference book for your favorite shell.
- A good UNIX book (if you need one). O'Reilly nutshell books are good.

Grading

Grades will be assigned according to the following scale,

- A 90-100
- B 80-89
- C 70-79
- D 60-69
- F 0-59

Grade Calculation: Grades will be calculated based on the following

- Midterm 15%
- Final Exam 15%
• Class Assignments 70%

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• Instructor: Arden Ruttan, 270 MSB. Phone 29066. User ID. ruttan. It is best to send me email when you wish to contact me.

• Office Hours: 6:45-7:30 T, 3:30-4:30 H and by appointment.

Class Notes

Time: 5:30-6:45 TH MSB 115.

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