SYLLABUS

(Fall 07)

MATH 140 – A

Linear algebra and Geometry

3:30 - 4:50 T,Th

8:00 - 8:50 F

(Plato)

Instructor: Dr. Michael Aristidou **Phone:** 425-895-4400, Ext. 4464
Office Hours: 5:00-5:30 T,Th **E-mail:** maristidou@digipen.edu

Textbook: Class Notes (No textbook required).

Other sources: (1) *Practical Linear Algebra*, by G. Farin and D. Hansford, AK Peters, 2004.
(2) *Mathematical Elements for Computer Graphics Applications*, by D.F. Rogers and J.A Adams, 2nd Ed., McGraw Hill, 1990.
(3) *Mathematics for Computer Graphics Applications*, by M. E. Mortenson, 2nd Ed., Industrial Press, 1999.

Course Overview: This course gives an introduction to vector geometry and linear transformations. Topics include: *review of basic algebraic and trigonometric concepts, vector arithmetic, lines and planes in 3-space, linear transformations (translations, rotations and reflections), matrix representations of linear transformations, and eigenvectors. Certain applications of the material towards computer graphics will be discussed.*

Course Outline: The material covered will, roughly, follow Farin's following chapters:
Ch.2- Ch.7, Ch.10-Ch.13.

Goals and objectives:
(1) Understanding the main topics of 2D and 3D space and its linear and affine transformations, its theorems, techniques and applications and being able to solve relevant problems.
(2) Being able to analyze problems and evaluate solutions for correctness and completeness.
(3) Developing the ability to present material, and answer questions, coherently, completely and accurately. Being able to explain things to others,
(4) Developing skills for team work by working in groups.

Tests: 40%-2 Tests, 25%-Midterm Exam, 25%-Final Exam, 10%-Project.
An extra 3% for small Homeworks will be given.
(**NO** test scores will be dropped)

The test schedule is, tentatively, as follows:

Test 1	Tuesday	Sept 25, 2007
Midterm	Tuesday	Oct 23, 2007
Test 2	Tuesday	Nov 20, 2007
Final	Finals Week	Dec 10 – 14

Project: There will be one project. The project is a 'team' effort. Groups of three will select their project from a list posted after the midterm. The project is **due** on Thursday Nov. 29, 2007. Details

will be provided later on in the course. (It is possible to select other topics not on the list with special permission of the teacher).

Grading Scale: The grade *G* for the course is then determined as follows:

$$
\begin{aligned}
&\text{A} \quad \text{if} \quad 90\% \le G \le 100\% \\
&\text{A-} \quad \text{if} \quad 85\% \le G < 90\% \\
&\text{B+} \quad \text{if} \quad 83\% \le G < 85\% \\
&\text{B} \quad \text{if} \quad 77\% \le G < 83\% \\
&\text{B-} \quad \text{if} \quad 75\% \le G < 77\% \\
&\text{C+} \quad \text{if} \quad 73\% \le G < 75\% \\
&\text{C} \quad \text{if} \quad 67\% \le G < 73\% \\
&\text{C-} \quad \text{if} \quad 65\% \le G < 67\% \\
&\text{D} \quad \text{if} \quad 50\% \le G < 65\% \\
&\text{F} \quad \text{if} \quad 0\% \le G < 50\% .
\end{aligned}
$$

Test Make-up Policy: Speak to me **before** the test or leave a telephone or an e-mail message. If you are not able to contact me before the test, contact me within the **next** couple of days. Documentation to verify the reason you missed the test is required. Only one make-up test will be allowed for the semester and that if there are extremely special circumstances.

Special needs: DigiPen Institute of Technology will provide reasonable accommodations and academic adjustments for persons with documented disabilities, as indicated in the catalog. Students need to contact the Student Services Director at the beginning of the semester to ensure that classroom and academic accommodations are implemented in a timely fashion. All communication between students, the Director of Student Services, and the professor, concerning special needs will be strictly confidential.

Class Policy: Attendance in class is expected, although not mandatory. Keep in mind, though, that if you are absent for 2 weeks, or more, you are considered to have withdrawn from the course. Also, repeated absence might result to complications with financial support for some students. If you decide to drop the course it is your responsibility to do the paperwork and follow the correct procedures. Only pencil is to be used on tests. Calculators like TI-89, or TI-83, are useful to have, but are not required. All tests must be your work. Cell phones, pagers, laptops, ipods, etc, are expected to be turned off during class. No food or drinks are allowed in class.

Academic dishonesty: Academic dishonesty (including cheating and plagiarism) is a serious matter, and will not be tolerated. It will be dealt with appropriately as indicated in the student handbook. Homework and solutions of problems should be your own work, and not be copied. It is fine to consult others and discuss problems with each other, but the final solution should be your own work and in your own words, with your own drawings and your own explanations.

***Notes*:** (1) There will be **tutoring** available for this class and we encourage you to take advantage of the opportunity. Tutoring schedules will be announced later in class.

(2) More useful material regarding this course, or other courses, you may here: https://digipen.edu/~maristidou/

(3) Changes, if any, to this syllabus will be announced in class.