TIME TABLE: 60731 MWF 2:00 – 2:50 from 01/13/2003 to 05/02/2003 in computer lab CCC 408 (fourth floor of Chicago Circle Center), except for seven times when we meet in SEL 2249: Mon 27 Jan, Mon 3 Feb, Wed 5 Feb, Wed 12 Feb, Mon 14 Apr, Wed 16 Apr, and Fri 18 Apr.

PREREQUISITES: Grade of C or better in MATH 210; and MCS 260 or EECS 170 or EECS 171.

INSTRUCTOR: Jan Verschelde, Office: 728 SEO, Phone: 312 996 4609.
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OFFICE HOURS: At 3PM on Monday, 11AM on Wednesday, and 1PM on Friday, I am sure to be in my office; but feel free to stop by if you have any math questions. We can also make an appointment.

TEXT BOOK: There is no textbook for this course, but lecture notes will be distributed at the beginning of each lecture and will also be available online. For this course, books on Maple and MATLAB have been placed on reserve (available at the reserve desk, 1st floor of main library).

MCS 320 SITE: See http://www.math.uic.edu/~jan/mcs320/index.html for policies, list of topics, lecture notes, project descriptions, etc...

HOMEWORK: Selected homework problems are assigned with each lecture, but it is recommended that you try all homework problems.

QUIZZES: There will be a quiz every Friday, except during exam weeks. Every quiz is worth 10 points. There will be no makeup quizzes. If you miss a quiz or if your performance is bad, you can turn in the assigned homework to regain some of the points lost.

PROJECTS: Three projects will be assigned during the semester, worth jointly a total of 200 points.
The deadline for each project occurs at 2PM, before the lecture starts. Late submissions are accepted till 5PM the same day, but are penalized with 10 points off. Note that late correct projects may thus then still be worth more than incorrect but timely submitted programs.

ACADEMIC HONESTY: No student shall claim or submit the work of another as ones own. You may discuss homework and projects with others, but must finish it and write the solution yourself without looking at others' work. Allowing someone to copy from you is also punishable.

EXAMS: During the semester, there will be two exams worth 100 points each. There will be no makeup exams given. The final exam counts for 200 points. If an exam is missed, then greater weight will be placed on the final exam, especially on the material covered on the missing exam.

GRADING SCALE:

90 – 100% = A, 80 – 89% = B, 70 – 79% = C, 60 – 69% = D, 0 – 59% = E.

Your course grade is based on a total of 700 points: 100 from the quizzes, 200 from the projects, 200 from the exams during the semester, and 200 from the final exam.

CLASS ATTENDANCE: Students are expected to attend all class meetings. Any changes in this syllabus or in the scheduling of exams and other assignments will be announced during class meetings. While the lectures cover the same materials in the text book, usually other examples will be presented and discussed. We will also address the topics you need to implement the projects.

SOME IMPORTANT DATES:
Monday 20 January: Martin Luther King Day, no class.
Friday 24 January: last day to drop the class.
Friday 8 March: last day to withdraw from the course.
Monday 17 – Friday 21 March: Spring break.
Friday 2 May: last day of classes.
Tuesday 6 May: final examination.

COURSE OUTLINE – subject to minor changes :

L-1	Mon 13 Jan	Introduction to computer algebra
L-2	Wed 15 Jan	getting started and getting help
L-3	Fri 17 Jan	integers, (ir)rational, and floating-point numbers
	Mon 20 Jan	**Martin Luther King Day — no class**
L-4	Wed 22 Jan	algebraic and complex numbers
L-5	Fri 24 Jan	assignment and unassignment
L-6	Mon 27 Jan	evaluation and names of variables
L-7	Wed 29 Jan	basic data types; attributes and properties
L-8	Fri 31 Jan	Maple i/o; library; reading and writing files
L-9	Mon 3 Feb	import/export of data; low-level i/o; code generation
L-10	Wed 5 Feb	univariate and multivariate polynomials
L-11	Fri 7 Feb	rational functions and conversions
L-12	Mon 10 Feb	representation of polynomials and rational expressions
L-13	Wed 12 Feb	substitution, expansion, and factorization
Project One due Friday 14 February at 2PM		
L-14	Fri 14 Feb	canonical and normal form; collecting and sorting
R-1	Mon 17 Feb	Review of first 14 lectures
E-1	Wed 19 Feb	**First midterm covers lectures 1 to 14**
L-15	Fri 21 Feb	Defining mathematical functions
L-16	Mon 24 Feb	Maple procedures and recursion
L-17	Wed 26 Feb	unapply; operations on functions; anonymous functions
L-18	Fri 28 Feb	Symbolic and Automatic Differentiation
L-19	Mon 3 Mar	Integration and Summation
L-20	Wed 5 Mar	Series, Approximations, and Limits
L-21	Fri 7 Mar	Sequence, set, and list
L-22	Mon 10 Mar	Array, Table, Last name eval, Function Call, Conversions
L-23	Wed 12 Mar	The assume facility and simplification
L-24	Fri 14 Mar	Two dimensional plots
L-25	Mon 24 Mar	Three dimensional plots
L-26	Wed 26 Mar	Solving equations
L-27	Fri 28 Mar	Differential Equations
Project Two due Monday 31 March at 2PM		
L-28	Mon 31 Mar	Linear Algebra
R-2	Wed 2 Apr	Review of lectures 15 to 28
E-2	Fri 4 Apr	**Second midterm covers lectures 15 to 28**
M-1	Mon 7 Apr	Introduction to MATLAB
M-2	Wed 9 Apr	Plotting with MATLAB
M-3	Fri 11 Apr	Polynomials and fitting
M-4	Mon 14 Apr	Programming in MATLAB
M-5	Wed 16 Apr	MATLAB as drawing tool
M-6	Fri 18 Apr	Movies in MATLAB
M-7	Mon 21 Apr	Signal processing in MATLAB
M-8	Wed 23 Apr	Special matrices
M-9	Fri 25 Apr	Graphical User Interfaces
R-3	Mon 28 Apr	Review of Maple, parts one and two
Project Three due Wednesday 30 April at 2PM		
R-4	Wed 30 Apr	Review of Maple, parts three and four
R-5	Fri 2 May	Review of MATLAB

Tuesday 6 May, 1:00 – 3:00 : Final Exam – room to be announced.