

**TIME TABLE:** 24851 MWF 11:00 – 11:50 from 01/10/2011 to 04/29/2011 in computer lab 1200 SE0.

**PREREQUISITES:** Grade of C or better in MATH 210; and MCS 260 or CS 102 or CS 108.

**INSTRUCTOR:** Jan Verschelde, Office: 1210 SEO, Phone: 312 996 4609.

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**OFFICE HOURS:** On Mon 12noon, Wed 1PM, Fri 2PM, I am sure to be in my office; but feel free to stop by if you have any questions. We can also make an appointment

**TEXT BOOK:** Lecture notes will be distributed at the beginning of each lecture and will also be made available via the course web site. The notes are based in part on the book of André Heck: “Introduction to Maple”, 3rd Edition, Springer-Verlag, 2003.

**Maple:** You can buy Maple at a discounted price at [webstore.maplesoft.com](http://webstore.maplesoft.com) with promotion code AP68553.

**MCS 320 SITE:** At <http://www.math.uic.edu/~jan/mcs320/index.html> is an electronic version of this sheet, along with lecture notes, Maple worksheets, computer assignments, and other relevant materials.

**HOMEWORK:** Exercises are assigned with each lecture. Although only a selection of the homework can be collected to make up for quizzes, it is strongly recommended to try all assignments.

**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 10AM, 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 projects.

**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. If you ever want a good job, note that the May/June 2003 issue of the UIC alumni magazine listed Honesty/Integrity at the 2nd place in the “Top 20 Qualities/Skills Employers Seek”.

**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 grand 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. We will also address the topics you need to implement the projects. You are expected to follow UIC’s PC LAB Usage Policy, see <http://www.uic.edu/depts/accc/policies/pcpolicy.html>.

**STUDENTS WITH DISABILITIES** who require accommodations for access and participation in this course must be registered with the Office of Disability Services (ODS). Please contact ODS at 312/413-2103 (voice) or 312/413-0123 (TTY).

**SOME IMPORTANT DATES:**

Monday 17 January : Martin Luther King, Jr., Day. No classes.

Friday 21 January : last day to register, last day to withdraw without W grade

Friday 18 March : last day for optional late drop

Monday 21 – Friday 25 March : Spring Vacation. No classes.

Thursday 5 May, 10:30AM - 12:30PM : final exam, room to be announced.

**COURSE OUTLINE** – subject to minor changes :

Part I	L-1	Mon 10 Jan	Introduction to Computer Algebra	<i>First Steps with Maple</i>
	L-2	Wed 12 Jan	Getting Started and Getting Help	
	L-3	Fri 14 Jan	Exact and Floating-Point Numbers	
		Mon 17 Jan	<b>Martin Luther King, Jr., Day – no classes</b>	
	L-4	Wed 19 Jan	Algebraic and Complex Numbers	
	L-5	Fri 21 Jan	Assignment and Unassignment	
	L-6	Mon 24 Jan	Evaluation and Names of Variables	
	L-7	Wed 26 Jan	Types, Attributes, and Properties	
	L-8	Fri 28 Jan	Input/Output Formats and Files	
	Mon 31 Jan	I/O of Data and Code Generation		
Part II	L-10	Wed 2 Feb	Univariate and Multivariate Polynomials	<i>Polynomials and Rational Expressions</i>
	L-11	Fri 4 Feb	Rational Functions and Conversions	
	L-12	Mon 6 Feb	Representation of Expressions	
	L-13	Wed 9 Feb	Substitution, Expansion, and Factorization	
			<b>Project One due Friday 11 February at 10AM</b>	
	L-14	Fri 11 Feb	Normalizing, Collecting, and Sorting	
R-1	Mon 14 Feb	Review of the first 14 lectures		
E-1	Wed 16 Feb	<b>First Midterm covers lectures 1 to 14</b>		
Part III	L-15	Fri 18 Feb	Defining Mathematical Functions	<i>Calculus</i>
	L-16	Mon 21 Feb	Maple Procedures and Recursion	
	L-17	Wed 23 Feb	Working with Functions	
	L-18	Fri 25 Feb	Symbolic and Automatic Differentiation	
	L-19	Mon 28 Feb	Integration and Summation	
	L-20	Wed 2 Mar	Series, Approximations, and Limits	
Part IV	L-21	Fri 4 Mar	Sequence, Set, and List	<i>Advanced Maple</i>
	L-22	Mon 7 Mar	Array, Table, and Conversions	
	L-23	Wed 9 Mar	Assume and Simplification	
	L-24	Fri 11 Mar	Two-dimensional Plots	
	L-25	Mon 14 Mar	Three-dimensional Plots	
	L-26	Wed 16 Mar	Solving Equations	
	L-27	Fri 18 Mar	Differential Equations	
			<b>Project Two due Monday 28 March at 10AM</b>	
	L-28	Mon 28 Mar	Linear Algebra	
R-2	Wed 30 Mar	Review of the lectures 15 to 28		
E-2	Fri 1 Apr	<b>Second Midterm covers lectures 15 to 28</b>		
Part V	M-1	Mon 4 Apr	Introduction to MATLAB	<i>Introduction to MATLAB and Sage</i>
	M-2	Wed 6 Apr	Plotting with MATLAB	
	M-3	Fri 8 Apr	Polynomials and Fitting	
	M-4	Mon 11 Apr	Programming in MATLAB	
	M-5	Wed 13 Apr	MATLAB as Drawing Tool	
	M-6	Fri 15 Apr	Images and Movies in MATLAB	
	S-1	Mon 18 Apr	Introduction to Sage, notebook interface	
	S-2	Wed 20 Apr	Basic mathematics and plots in Sage	
	S-3	Fri 22 Apr	organization of Sage, Python scripting	
R-3	Mon 25 Apr	Review of Maple, material covered in 1st Midterm		
		<b>Project Three due Wednesday 27 April at 10AM</b>		
R-4	Wed 27 Apr	Review of Maple, material covered in 2nd Midterm		
R-5	Fri 29 Apr	Review of MATLAB and Sage		

**Thursday 5 May, 10:30AM - 12:30PM : Final exam, room to be announced.**