

ABOUT THE COURSE

This super course, now in its fifth year, is intended for people who are teaching mathematics or using mathematics in their work who would like to learn Maple from an expert. Maple is an industry leader in mathematical computation. It includes facilities for exact algebraic computation, numerical computation, graphics, and a modern graphical user interface as a working environment.

The course is designed to help you:

- Learn to use Maple interactively as a problem solving tool;
- Create graphic images;
- Learn to use the facilities available in Maple for mathematics applications;
- Write simple Maple programs;
- Learn how to incorporate Maple into a Mathematics course;
- Prepare course materials and documents for live presentations, assignments, exams, and publication; and
- See lots of applications where using the computer is appropriate for teaching.

COURSE OUTLINE

The course is divided into five days running from 8:30am to 5:00pm. The first day is especially for those who have not used Maple before. Mornings include direct instruction from Dr. Monagan on the topics listed below.

In the afternoons, participants work with Maple in a lab under Dr. Monagan's guidance. Participants may work on a problem of their own choosing, or from a list provided to them.

COURSE SCHEDULE

Day 1: Monday, August 12th – Basics and Calculus

Numbers, polynomials, formulae, simplifying formulae. Graphing functions, fitting functions to data, derivatives and solving equations. The Maple GUI and preparing Maple worksheets.

Day 2: Tuesday, August 13th – Calculus and 2D & 3D Graphics

Integration. Power series. Graphing curves and surfaces, and creating animations. Multivariate calculus. The logistic map. Running mathematics experiments.

Day 3: Wednesday, August 14th – Linear Algebra and Preparing Documents

Vectors, matrices and linear algebra in Maple. Graphing of linear systems, linear transformations, and eigenvectors for teaching. Solving polynomial systems, factoring polynomials and Groebner bases. Preparing Maple V teaching and presentation materials in PostScript, LaTeX and HTML.

Day 4: Thursday, August 15th – Differential Equations and Graphics

Analytical solutions, graphing solutions, equilibria, phase-portrait plots. Numerical linear algebra and numerical solutions of ODEs. Creating your own graphics.

Day 5: Friday, August 16th – Discrete Mathematics and Programming

Sums, generating functions and recurrence relations. Programming in Maple: the Euclidean algorithm, a cellular automaton, fractal images, and RSA public key encryption.

For Further Information, please contact:

Dr. Michael Monagan

(604) 291-4279 or (604) 264-1063

Electronic Mail: monagan@cecm.sfu.ca

ABOUT THE INSTRUCTOR

Michael Monagan is an associate professor in the Department of Mathematics at Simon Fraser University. Dr. Monagan has a PhD in computer science from the University of Waterloo. He is one of the Maple inventors and is using Maple in teaching and research. He is an author of the book *Programming in Maple Guide*.

Dr. Monagan has experience with industrial applications of Maple and experience with using Maple in the classroom. He is currently involved in the continuing development of Maple and his interests include scientific computing, automatic differentiation, simplification of formulae, polynomial GCDs and factorization, and visuals for teaching.

COURSE MATERIALS

Participants will be given a library of applications of Maple that Dr. Monagan has assembled over the last 5 years.

Participants will be able to browse a large collection of Maple books.

FULL MAPLE FOR \$200.93

Course participants will have the opportunity to purchase a full version of Maple for their personal computer at a special rate of **\$200.93** (tax included). Maple 7 is available for the MacIntosh, Windows and Linux on a CD only.

REGISTRATION

Course fees include all handout materials, coffee & snacks, and parking. Fees of more than \$100 are tax-deductible and are GST exempt in Canada. Please note the fees are in Canadian Dollars. US citizens may pay in US\$ at a rate of 0.65.

	*Early	Regular
<input type="checkbox"/> Option 1: Three Days Only	\$400	\$450
Mon Tues Wed Thurs Fri (Please Circle Appropriate 3 Days)		
<input type="checkbox"/> Option 2: Four Days Only	\$500	\$550
Mon Tues Wed Thurs Fri (Please Circle Appropriate 4 Days)		
<input type="checkbox"/> Option 3: Full Program	\$600	\$650
<input type="checkbox"/> Maple 7 Software (Optional)		\$200.93

* Early registration is prior to July 22nd, 2002.

Enclosed fee in the amount of \$ _____

Name _____

Position/Title _____

Organization _____

Address _____

Postal Code _____

Telephone _____

Fax _____

E-Mail _____

ENROLMENT

Enrolment is limited to 20 participants. Please register early so as not to be disappointed.

Compete and return this form along with fee payment to:

Casey Bell
Department of Mathematics
Simon Fraser University
Burnaby, BC V5A 1S6
Phone: (604) 291-3331
Fax: (604) 291-4947
E-Mail: casey_bell@sfu.ca

Fees should be paid by cheque, **payable to: Simon Fraser University.** Faxed reservations are accepted. When registering by e-mail, please provide full registration information.

Cancellation Policy

Cancellation of registration prior to August 5th is subject to an administration fee of \$75. Cancellations after this date do not qualify for a refund, but replacement registration are welcome. The cancellation request may be made in writing, by telephone or by e-mail and the original Simon Fraser University fee receipt must be returned.

Location:

Room K9509
Shrum Science Centre
Simon Fraser University
Burnaby, BC

Fee: *See registration area for fee structure.*

*Sponsored by Waterloo Maple Inc.,
Waterloo, Ontario (the Developers of Maple)*

organized by
the Department of Mathematics
Faculty of Science
Simon Fraser University

TEACHING & DOING MATHEMATICS WITH MAPLE

With Michael Monagan

Monday to Friday
August 12 – 16, 2002
8:30am – 5:00pm

Department of Mathematics
FACULTY OF SCIENCE
SIMON FRASER UNIVERSITY

