M 291 — Sect. 2  Introduction to Mathematical Software  Spring 2011

CLASS:  MWF: 10:10am – 11:00am; Room: MA 306

INSTRUCTOR:  Karel Stroethoff

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DESCRIPTION:  The course will introduce software packages useful for doing and writing mathematics. An introduction will be given to a computer algebra system (such as Maple or Mathematica), a numerical package (such as MATLAB or R), and elementary programming. The course will furthermore cover writing and communicating mathematics using the mathematical typesetting system \LaTeX.

PREREQUISITES:  M 162 or 171 (MATH 150 or 152), or consent of instructor.

LEARNING GOALS:  • Using a computer algebra system or a numerical package, demonstrate the ability to:
  ○ Display mathematical objects graphically;
  ○ Model repetitive processes and conditional situations;
  ○ Model multidimensional objects using vectors, matrices, or related structures;
  ○ Embed algorithms in reusable functions and procedures;
  ○ Conjecture mathematical statements (mathematical experimentation);
  ○ Find solutions to modeling problems with the aid of software manuals.

  • Using \LaTeX, demonstrate the ability to typeset mathematical documents.

GRADING:  There will be lab work, regular homework assignments, and students will complete projects using a software package, and communicating their writings using \LaTeX.