Course Goals

The main goal of this course is to provide students with an understanding of both the theory and the applications of calculus. This course is designed to provide students in science and engineering with the fundamentals of calculus and also to provide experience with how it is used to solve problems. Students will also gain experience in working in teams on the laboratories that are an important part of this course.

About this course

- **Laboratories.**
  Labs for MA 1023 are on Monday or Tuesday where you will work in pairs on lab exercises designed to help you explore the calculus concepts we are struggling with. Short written reports will be required; there will be 5 labs during the term, totaling 10% of your final grade.

  Lab reports will be due the same day the lab is introduced. Attendance at the lab sessions is required. No excuses will be accepted without prior arrangement with me. Labs will go up on the web on the Friday before the lab period.

- **Examinations.**
  There will be three exams. Each hour exam will count for 25% of your final grade. Together, these exams will count for 75% of your final grade.

  Tentative dates for the exams are September 15, September 29, and October 13. All exams will be during our normal class time. Make-ups for missed exams will not be given without prior arrangement with me.

- **Homework.**
  There will be weekly homework assignments from the text. Homework from the text will be collected in the conference sections and selected problems will be graded. There will also be shorter on-line assignments using WeBWorK once or twice a week. Homework scores will count as 15% of your final grade. Late homework will not be accepted without prior arrangement with me.

  Homework papers must include your name and section number on the first page. Homework papers must be stapled. Each problem must include the steps you used to get to
your answer as well as a brief explanation of your logic. Answers without supporting work will not be graded.

**About WeBWorK**
WeBWorK is a web-based collection of programs for on-line submission of homework. It was developed at the University of Rochester. WeBWorK provides immediate feedback to students and gives them the opportunity to correct mistakes during the process.

- **Academic Dishonesty**
  Any instances of academic dishonesty will be dealt with according to WPI policies. See the web site [http://www.wpi.edu/offices/policies/honesty/](http://www.wpi.edu/offices/policies/honesty/) for details.

- **Course Accommodations**
  If you need course accommodations, please see me as soon as possible. Any such accommodations must be coordinated through the Disability Services Office.

**Topics to be covered this term.**

**Week 1** Indeterminate forms and improper integrals, sequences
  Secs. 4.5, 8.8, 10.1

**Week 2** Infinite series, integral test, other convergence tests
  Secs. 10.2, 10.3, 10.4, 10.5

**Week 3** Alternating series, Power series, Taylor series
  Secs. 10.6, 10.7, 10.8

**Week 4** More on power series, parametric curves
  Secs. 10.9, 10.10, 11.1, 11.2

**Week 5** Polar coordinates
  Secs. 11.3, 11.4, 11.5

**Week 6** Vectors, lines and planes
  Secs. 12.1, 12.2, 12.3, 12.4, 12.5

**Week 7** Curves in space, motion, curvature
  Secs. 13.1, 13.2, 13.3, 13.4, 13.5