Syllabus
UTK – M534 – Calculus of Variations
Spring 2006, Jochen Denzler, MWF 12:20–1:10, Ayres 309A

Course contents: A blend of classical results and methods with modern ideas. The classical results will be treated with more mathematical rigor, since they require little technical prerequisites. Modern ideas like direct methods will be included conceptually, but skipping technical details that require prerequisites beyond this course. The conceptual analogies and key facts and purposes are however well within reach and form an equally important part of the blend.

An phenomenological introduction will be designed to foreshadow all the theory that follows, so watch the examples closely.

Exams: There will be two exams during the semester, and a final during the official exam period. Exams will be part calculational, part conceptual (fact knowledge about definitions, theorems, key proof arguments, key examples and applications).

Total grade: 40% homework, $3 \times 20\%$ for each exam, or else 25% hwk and each exam. Whichever weight averages better for each individual will apply to that individual.

Homework: Will be assigned on a flexible schedule, and in various forms. You may collaborate on homework, but should turn it in individually, because accomplished homework will become an integral part of your course notes. As a guide through the material, homework bears about equal weight with the lecture. It may occur that you find hwk less straightforward than I thought it would be (or at other times I may just have taken chances deliberately). We can discuss difficulties in class and you finish it up after the discussion. Deadlines will be made as flexible as needed to accomodate this style.

Quizzes: Depending on how things work out, we may have a few occasional quizzes. If so, they may either count as a hwk problem, or as one problem on one of the exams, to be announced at the time.

Book(s): I don't follow a textbook closely, but a good and affordable reference with enough intersections with the course is the booklet by Gelfand and Fomin. The book is classical most of the time, with some (modern) direct methods at the end. Since the lecture attempts to blend, rather than separate, the different approaches, the order within the lecture will differ from the order within the book.

Office hours: MWF 2:30–3:15. I am also available for drop-in or appointments, but probably not on Tuesdays. You may call my cell phone: (604-7173) or my office phone (974-5325) to schedule an appointment or discuss a quick question.

My office is Ayres 317E, my e-mail is `denzler@math.utk.edu`