Course Syllabus  
MA 700  Directed Study-Technology  
Teaching Secondary Mathematics Using Technology

Dr. Darien Lauten  
Times, dates: To be arranged  
Office Location: Regis (top floor)  
Home Phone: 603 868 7133 (h)  
e-mail address: a.lauten@comcast.net  

Required Course Textbook: All participants in the MAT in Mathematics program are required to join the National Council of Teachers of Mathematics (NCTM) and receive your own copy of the “Principles and Standards of School Mathematics” (PSSM) and one NCTM journal, “The Mathematics Teacher” or “Teaching Mathematics in the Middle School”. PSSM will be used regularly in this course. You can join NCTM by telephoning 1-800-235-7566, completing an order form at the web site: www.nctm.org, or downloading an order form and mailing it. Until you receive your own copy of PSSM, you may read PSSM and assigned (and other) pages on the NCTM web site, www.nctm.org. You will be expected to have access to, read, and regularly use articles and activities from back issues of the NCTM journals and other mathematics curriculum materials. Back issues of NCTM journals and other curriculum materials are available in the Regina Library as well as in many area schools.

You are also required to subscribe to ENC Focus: A Magazine for Classroom Innovators. This free magazine contains many classroom activities and ideas and suggestions from other classroom teachers. It is published by the Eisenhower National Clearinghouse for Mathematics and Science Education funded by the U.S. Department of Education. You can subscribe by telephoning (800) 621-5785, completing an order form at the web site www.enc.org, or by mailing an order form.

Required Materials  You are required to own or have ready access to a computer with spreadsheet software (Excel will be used in class) and a TI-83 or TI-83+ or later graphing calculator.

You will be required to obtain a Rivier College account for the course. You will be using the campus computers.

Further information about technology used in the course:  
TI-83 or TI-83+  
If you already have a TI-83 calculator, that’s fine. If you are purchasing a new calculator, you might consider the benefits of the TI-83+ over the TI-83. The TI-83+ includes the ability to link with integrated computer software for mathematics and science. You can expect to pay about $79 for the calculator, if you shop around. Rivier College Bookstore, Walmart, K-mart, Target, etc. TI-81, TI-82, TI-85, and TI-86 calculators are not suitable because they do not have the list and statistics capabilities we will be using. The TI-89 and TI-92 are fine, but I don’t keep up to date on the latest capabilities of each. You may speak to me about the suitability of other brands of graphing calculators. Unfortunately, I do not have the time to keep up-to-date on all of the different brands of calculators available and the constantly changing capabilities and menus of each.

2/6/2006  MA 165A Syllabus
Geometer’s Sketchpad
You also will be required to do assignments on Geometer’s Sketchpad. Geometry Sketchpad is available for use in some computer labs at Rivier College. If you prefer not to use campus computers for your assignments, you can ask the bookstore to facilitate your purchase or search on-line.

Statistics Software
We will use the TI-83, Excel (when possible) and, perhaps, MAPLE for the statistics work. MAPLE is available on all Rivier College computers in all labs. I suggest you plan to do the SPSS work on campus, unless you wish to purchase the student version of SPSS. Other statistics packages such as JMP, Minitab, SAS, etc. are fine. If you prefer not to use campus computers for your assignments, you can ask the bookstore to facilitate your purchase or search on-line.

Symbol Manipulation Software
We will use MAPLE for the in-class symbolic manipulation work. Like SPSS, MAPLE is available on Rivier College computers. If you prefer not to use campus computers for your assignments, you can ask the bookstore to facilitate your purchase or search on-line. If you prefer not to use campus computers for your assignments, you can ask the bookstore to facilitate your purchase or search on-line.

CBL
We will be using a CBL. You may want (not required) to consider purchasing a CBR or CBL for use in your classroom. I will provide details in class.

Course Objectives:
- To help participants become proficient users of technology that is frequently available in area schools.
- To help participants and their students deepen and broaden their understanding of mathematics concepts through their interaction with curriculum materials that incorporate technology.
- To help participants learn to evaluate, modify, and write curriculum materials that include the use of technology.
- To help participants align their teaching with the NCTM Principles and Standards for School Mathematics and state curriculum frameworks.
- To enable participants assess student understanding of mathematics objectives after student interaction with technology while learning mathematics.

  use technology in teaching classroom mathematics
  write effective student questions
  effectively modify published lessons involving technology
  assess student learning the mathematics
  write lessons involving technology

Teaching Strategies:
- Use of technology
- Computer labs
- Analysis, evaluation, and revision of curriculum materials
- Development and analysis of teaching units and lessons that incorporate the use of technology
- Implementation of technology-based activities and lessons in school classrooms and analysis of implementation and outcomes
- Inservice teacher use of technology based lessons in their classroom with pre-service teacher observation and assistance. Pre-service teacher observation and assistance with inservice teacher technology-based lessons.
- Videos of teachers using technology in their classrooms

Course Requirements:
- Documentation of all out of class time learning the technologies and working with student learning in technology rich envirement.
• Assessment of published, written curriculum materials
• Independent reading, working through, and figuring out tutorials, reference manuals, and technology directions
• Modeling and self and peer assessment of classroom use of various pedagogical techniques
• Assessment and evaluation of student work
• Use of APAA Style Manual to referencing and cite of all curriculum materials incorporated in activities and lessons
• Completion of all assignments
• Reading of pedagogical and curriculum material beyond that directly assigned
• Implementation of activities in classroom (in-service teachers) and observation of activity implementation (pre-service teachers).
• Self assessment

**Methods of Assessment and Computation of Grades:**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement in class activities, discussion, and labs</td>
<td>25%</td>
</tr>
<tr>
<td>Assignments</td>
<td>75%</td>
</tr>
</tbody>
</table>