MATH 1042 SYLLABUS FALL 2007

Instructors' Version

Prerequisites for Math 1042 are a grade of **C or higher** in Math 1041, Calculus I, or transfer credit for a course equivalent to Math 1041.

TEXT: J. Hass, M. D. Weir, G. B. Thomas, *University Calculus*, Pearson Education, Inc., 2007

Syllabus

Math 1042 meets four hours a week for fourteen weeks, a total of 56 hours. There are 48 hours in the syllabus, which leaves 8 hours for review and testing.

Chapter 5: Integration (13 hours)

Cover Sections **5.1 – 5.7**.

Section **5.1**. Do not spend much time on this section. Just give one or two examples of estimating the area and the distance traveled. Concentrate on the midpoint rule and assign the four problems from the list.

Section **5.2**. Introduce the Σ notation, partitions and Riemann sums. Explain Riemann sums thoroughly, but do not spend time on calculation of specific sums involving $\sum_{k=1}^{k=n} k^2$ or $\sum_{k=1}^{k=n} k^3$.

Section **5.3** defines the definite integral, interprets it in terms of area, and covers the properties of integral necessary in order to prove the Fundamental Theorem of Calculus. Do not spend your time on showing that $\int_0^b x\,dx = b^2/2$ using Riemann sums as in EXAMPLE 4 in the book. Instead, derive this identity by interpreting this integral as an area. In general, try to get as fast as possible to Section **5.4**, The Fundamental Theorem of Calculus.

Substitution method is covered in both, Section **5.5** and Section **5.6**. Section **5.1** introduces substitution in indefinite integrals and Section **5.6** treats definite integrals evaluated by substitution method. It also covers area between curves. The area problems start with Problem 47. You will probably want to assign them separately from Problems 1 – 39.

Section **5.7**. Do not introduce $\ln x$ as a definite integral, but do show how to deal with integrals that involve $1/x$ and e^x.

Chapter 6: Applications of Definite Integrals (3 hours)

Section **6.1**. This is the only section we cover in Chapter 6 in order to make more time available for infinite series.

Chapter 7: Techniques of Integration (12 hours)

Cover Sections **7.1 – 7.4** and **7.7**. Section **7.2** does not specifically cover integrals of products of powers of $\sec x$ and $\tan x$ (like our previous books did) and the exercises in this section do not include integrals of this type. Six supplementary exercises were added to the homework to fill this gap.

Chapter 8: Infinite Sequences and Series (20 hours)

Cover Sections **8.1** – **8.9**. Cover Section **8.10**, The Binomial Series, only if time allows.

Section **8.1**. Treat sequences as a tool for dealing with series. Try to move quickly to Section **8.2**.

Section **8.2**. Do not spend your time on recursively defined sequences.

Section **8.6**. This section should be covered briefly. Cover absolute convergence. Give an example of a conditionally convergent series (alternating harmonic series will do) and state the alternating series test, but otherwise do not spend time on this section.

Section **8.7**. When finding the interval of convergence do not bother about the endpoints of the interval.

Policies: **NO** "cheat" sheets are to be allowed on any exams or in-class quizzes. You may allow use of scientific calculators on a few quizzes, where calculators may be needed, but in general, **NO** calculators are to be allowed on exams or in-class quizzes. This is the same calculator policy our students had in Calculus I classes. Please enforce these policies **strictly**.

Homework: A list of recommended homework problems has been compiled for your convenience. It is extremely important to **make** our students do their homework. Experience shows that the most effective way to achieve this is to test them regularly (say, once a week) by giving in-class quizzes that are based on the assigned homework. You may collect their homework if you wish or assign COW problems, but please do not limit yourselves to only these ways of monitoring your students' work since they are far less effective than in-class quizzes.

Exams: We will have two common midterms and a cumulative common final exam. (To minimize the risk of cheating, please **do not tell** your students that the midterms are common.) The dates of the exams are the following:

Final exam: Tuesday, December 11th (from 8:30 to 10:30 AM);

classes meeting on	Test 1 (covers 5.1–5.7, 6.1, 7.1, and 7.2)	Test 2 (covers 7.3–7.4, 7.7, and 8.1–8.7)
TR	Thursday, October 4	Thursday, November 15
MWF	Friday, October 5	Wednesday, October 14

Test 1 should cover the material up to Trigonometric Integrals, Section 7.2. If we find ourselves in time trouble, we can limit Test 1 to the integrals involving sine and cosine only. Test 2 should cover the rest of Chapter 7 and the part of Chapter 8 finishing with Power Series, Section 8.7. The rest of the material, starting with Taylor series, will be covered after the second midterm. It is important to test this material by giving at least one quiz before the final exam. I suggest that you do not include the scores for these last quizzes among the two dropped scores (please let your students know about this).

Review Sessions: The MSRC will run several review sessions for students over the course of the semester. During the first week of class there will be a review of differentiation and some basic antiderivates. Before each of the midterms and the final exam there will be reviews on the material to be covered on the exams. There may also be another review sessions on limits to be run just before starting Chapter 8. You should strongly encourage your students to attend these review sessions as it is good preparation for the exams.

Grading Policy: The final (letter) grade will be assigned based on the overall score for the course. We will use the following scale:

A	A–	B+	B	B–	C+	C	C–	D+	D	D–	F
93–100	90–92	87–89	83–86	80–82	77–79	73–76	70–72	65–69	55–64	50–54	0–49

The overall score will be computed as the weighed sum as follows:

Quizzes/Homework	20%
Test 1	23%
Test 2	23%
Final Exam	34%