ON-LINE MATH 21 SYLLABUS

The idea of this course is to give as complete a presentation as possible of the standard Lehigh Math 21 course, over the Web. The syllabus, amount and types of requirements, and level of presentation is taken from the on-campus course; this course should neither be harder nor easier than the on-campus version. The "lectures" you will be reading, and the examples and animations that accompany them, are taken from my lecture notes, and the sorts of examples and presentations I give in lecture.

The differences are, of course, obvious. You will not be in lecture, and will not have easy access to me either there or in my office to ask questions. More importantly, you will not be around other students taking the course as well. Exams cannot be administered in a common room, and turning in homework is not just a matter of leaving it on the table at the beginning of class. On the other hand, you are not locked in to coming to lectures Monday-Wednesday-Friday at 11, and you can go over them as many times as you need.

1. Communication

Trying to learn calculus will generate a lot of questions. You need to be able to get prompt answers to them, and you need to be able to talk through the ideas – not just with your instructor, but with other students as well. We're going to push to make sure you can get your questions answered quickly and completely, and that you have opportunities to "talk" about the material with others in the course. We'll do that through e-mail and phone calls, discussion groups, and chat sessions.

1.1. **Web Site.** The main Web site for this course is the easy-to-remember location:

`https://ci.lehigh.edu/bin/common/course.pl?course_id=_1536_1&frame=top`

You can always get to this website by first going to the main "Blackboard" site, `http://ci.lehigh.edu` , if for some reason you can't remember the specific address of the course.

All of the course materials will be available on that Web site. Your "Webwork" homework assignments are actually run through another server, but you can access that from within the main site.

1.2. **E-mail and telephone.** I am always on the net (one of the reasons I'm teaching this course), and easy to reach by e-mail, `david.johnson@lehigh.edu`. (This is really the same account as the address you see in Blackboard, `dlj0@lehigh.edu`). You can call me at:

office: (610) 758-3759

home: (610) 828-3708

car: (610) 506-6919

All of these numbers have voice-mail, in case you can't reach me. You can certainly call my office any time, but I'm only likely to be there during the day (and not every day). Feel free to call me at home as well. However, since I have two teen-age daughters, it is sometimes difficult to get through (the voice-mail will answer if someone is on the phone). Calling me on my car phone may reach me in situations where I won't be able to provide much help, but as a last resort, or if the matter is urgent, it's better than not reaching me at all.

There is a list of e-mail (only) addresses of everyone in the class, and Web pages you can individualize if you want, so you can contact your fellow students. You can also "interact" with other students on the discussion groups and the chat room.

1.3. **Discussion Groups.** The main course Web page will have links to "Discussion Board". I will start out topics, called threads, on a number of subjects. Each of you should feel free to add messages regarding any of these topics. It works something like USENET, for those of you who know about that. I have to start the "threads", but each of the discussions can branch into sub-topics. I want to encourage you to use the discussion groups, since such discussions are important to learning mathematics. Thus, their use will be required (at least one individual post, and two follow-ups to someone else) as part of your class-participation grade.

1.4. **Chat.** There is a chat room available from the Web page, called the *Virtual Classroom*. We will be using this for regular "class meetings", at a time that is convenient for all of us. Meeting times will be determined as class gets underway, and will be announced. In addition, any of you can start a chatroom discussion at any time. The chat room has a whiteboard as well as text, and everyone can use the whiteboard. We will begin with two class meetings per week, but will drop down to once per week if the amount of discussion does not warrant continuation at a twice-per-week schedule.

Since the on-line chats are an important part of the course, attendance will be *required*. **However**, since students' needs and schedules both vary, attendance will only be required at a minimum of 5 such sessions. If your schedule precludes your attending even that many chats, alternate arrangements can be made.

1.5. **Announcements.** The main course Web page will have announcements posted regularly. I expect you to check the page often — which you should be doing anyway, as you work through the course.

2. Requirements

2.1. **On-line exercises.** As you read through the "lectures" you will come across, from time to time, exercises that you will have to solve, and submit answers. Those answers will be automatically e-mailed to me for grading. I will send back my comments and grade on each exercise-set. The purpose of these exercises is to give you rapid feedback about your understanding of the material, and to allow me to make sure you are keeping up with the course. These exercises will form a part of your class grade, as indicated below.

2.2. **Reading and Homework.** With each chapter, there are reading assignments in the text, and a large number of homework problems to solve in the text. Some of these homework problems are *Web Work* problems, which are accessible from the Web (as the name implies). These are very similar to the HW in the text, but are customized for each individual student (no two get precisely the same problems). For these, you submit your answer through the Web and a machine determines whether or not the answer is correct. It cannot explain what you did wrong, but you will know when you get the right answer. You can re-work the problem until you get it right. Other problems will be written work, most of which will be done by hand (*Web Work* can't handle either proofs or graphs very well). Some of these problems will require the use of the computer program *Maple*, which you received along with the rest of your course materials. Most of the written assignments will be problems out of the text, but some will be separate problems or *Maple* worksheets (A *Maple worksheet* is a computer file you will download and then "open" within *Maple*).

The specific homework assignments for each chapter, along with links to *Web Work* for your Web Work assignments, are available under Assignments within each chapter. The Chapters are all available under Course Materials at the main Web page.

The reading is meant to give you an alternate perspective about the topics discussed in the virtual lectures (I need a better term for that). The sections listed can be read along with the lectures, but the order will not be precisely the same as in the virtual lectures. Also, since each section in the text is made to be delivered in a one-hour lecture, they are sometimes shorter, or longer, than the virtual lectures (and sometimes split into two or more sections). The paper problems, and completed Maple worksheets (printing them out is preferable to submitting them electronically) should be mailed to:

David Johnson
Department of Mathematics
Lehigh University
Christmas-Saucon Hall
14 E. Packer Avenue
Bethlehem, Pennsylvania 18015-3174

The due dates will be listed with the assignments for each chapter. Homework should be postmarked by that due date. In most cases, homework for a given chapter will be broken up into more than one assignment, due approximately once per week. You can certainly submit your homework early, when you are ready (up until the due date). Your homework will be graded and mailed back to you.

It is a wise idea to make a photocopy of your homework, or exams, before mailing them in.

2.3. **Exams.** There will be two mid-term exams and a final exam. The timing of these exams will be individual, but there will be deadlines imposed so that you do not fall too far behind the course. Deadlines for the first exam is March 1, and the second exam should be completed by April 5. The final exam, covering the entire course, needs to be completed by May 14.

Details of exam deadlines and material to be included will be posted on the Web page.

The two mid-term exams will cover material in discrete parts of the course. The first mid-term will cover the material of the first two chapters (plus the introduction), *Introduction*, *Limits,* and *Derivatives*. The second mid-term exam will cover the "*Zoo*" of functions, and the *Theory and Practice*. The final exam will be **comprehensive**, covering all the material in the class. It will, however, emphasize the material after the second mid-term exam (*The Integral* and *Applications of Integration*).

3. Grading

Your grade will be determined based on the total number of points scored on all of these requirements. Virtual class participation (discussions and chats) will be a formal part of your grade.

The points will be awarded based on the following total possible points:

	Possible points
Class participation	20
On-line exercises	50
WebWork Homework	50
Written Assignments (paper and Maple)	50
Midterm #1	100
Midterm #2	100
Final Exam	200
Total	570

Your final grade will be determined on a percentage basis, with:

- 90% of the total (513 points) guaranteeing you at least an A-,
- 80% (456) will guarantee at least a B-
- 70% (399) guarantees a C- (required to enroll in Math 22)
- 60% (342) guarantees a passing grade.

Your grades on each part of the course (in-progress grades on homework averages, of course) will be available to you on the Web site.

E-mail address: `david.johnson@lehigh.edu`

URL: `http://www.lehigh.edu/~dlj0`