



## Calculus from an Advanced Viewpoint

MATH 6102–090  
Spring Semester 2007

**Classroom:** Denny 206  
**Time:** Monday 5:00–7:45 PM  
**Professor:** Dr. David Royster  
**Office:** COED 227  
**Office Hours:** Monday 4:00 – 4:45, or by appt  
**Office Phone:** 704–687–8817  
**email:** droyster@email.uncc.edu  
**URL:** <http://education.uncc.edu/droyster>

**Class Homepage:** <http://education.uncc.edu/droyster/courses/fall06>

**Class Homework Discussion Page:** <http://edukate.uncc.edu/droyster/discussion>

**Text:** *No text required. Notes will be distributed by the web.*

**Other:** You will want to have access to a TI Graphing Calculator. It can be an 83, 83+, 84, 84+, 89, 200 or Voyage. If you want to insist on using an 85 or an 86, I can usually assist you. If you insist on an HP or a Casio, you may be out in the stream in your own boat.

**Number of Class Meetings in the Semester:** 15 classes

**Prerequisites:** MATH 6101 or consent of the Department

**Objective:** “Axiomatic and historical development of the calculus; rigorous development of derivatives and integrals.” Basically, we will study the calculus of Newton and Leibniz and its extensions to higher dimensional spaces.

**Tests:** We will have homework, classwork, web homework and a final. The schedule indicates that the final exam will be Monday, May 7 from 5:00 – 7:45 PM. We are required to meet during this time by University policy.

**Grades:** Your course grade will be determined by the homework, the classwork, the web work, and the final.

**Purpose:** We have seen how to manipulate the symbols to compute derivatives and integrals and such. How did this come about? What do they mean? Can they be generalized in a meaningful manner? This time, we jump!

**Class Policies:** There are several policies to which you must pay heed.

- i) Attendance is extremely important in a class of this level. If you feel that you do not need to attend this class, you are in the wrong classroom—go find a course in which you will be challenged and in which you will learn something new.
- ii) You are allowed one unexcused absence and one excused absence in this course. Any absences beyond this will have an impact on your grade for the course.

- iii) You have been given a day-by-day course syllabus. You NOW KNOW when we have class and when we do not have class. I expect you to be here on all days that we have class.
- iv) I will not accept late homework. If for some reason you miss a class and it is excusable, see me as soon as possible to discuss the situation.
- v) Academic dishonesty will be punished severely. Be cognizant of the *Code of Student Academic Integrity*.
- vi) Be on time to class and remain until dismissed. Do not leave in the middle of class.

**Inclement Weather Policy:** The UNC Charlotte Weather Hotline is (704) 687-2877. In the event that we have *inclement weather*<sup>1</sup> but the University does not close or cancel classes, and I have to cancel the class, a message to that effect will be left on my voicemail (704-687-4543) and I will email every member of the class (if I have access to email).

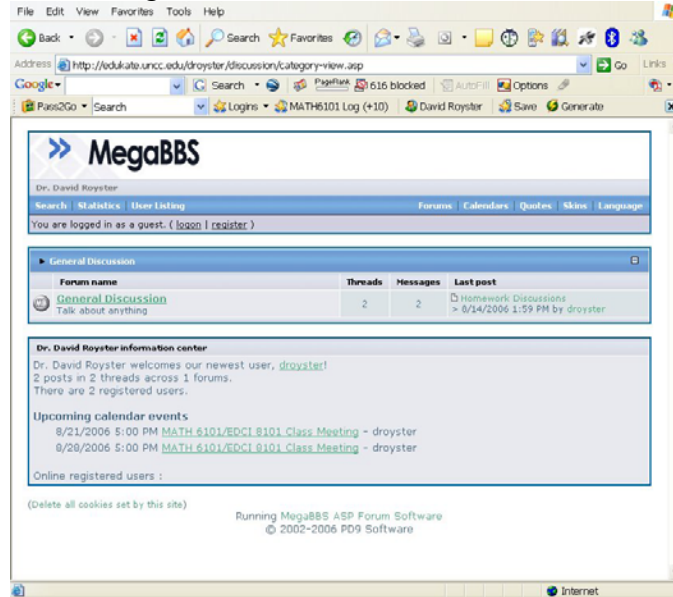
If you feel that travel during *inclement weather* would be hazardous, then try to inform me as soon as safely possible. You will be given the opportunity to make up any work missed or due on that day. As always, each student is responsible for any work missed and will be expected to get the notes from another student or the web.

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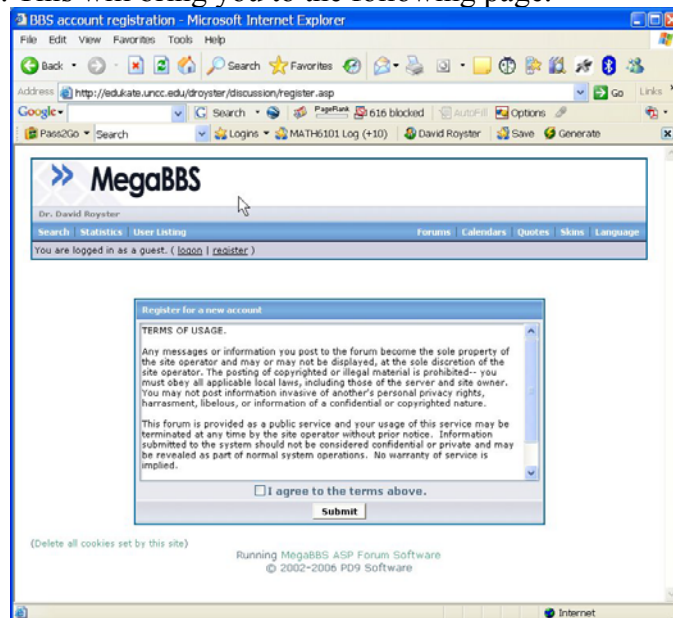
<sup>1</sup> Snow, ice storm, high and dangerous winds – not heavy frost.

## Instructions for Homework Page Discussion

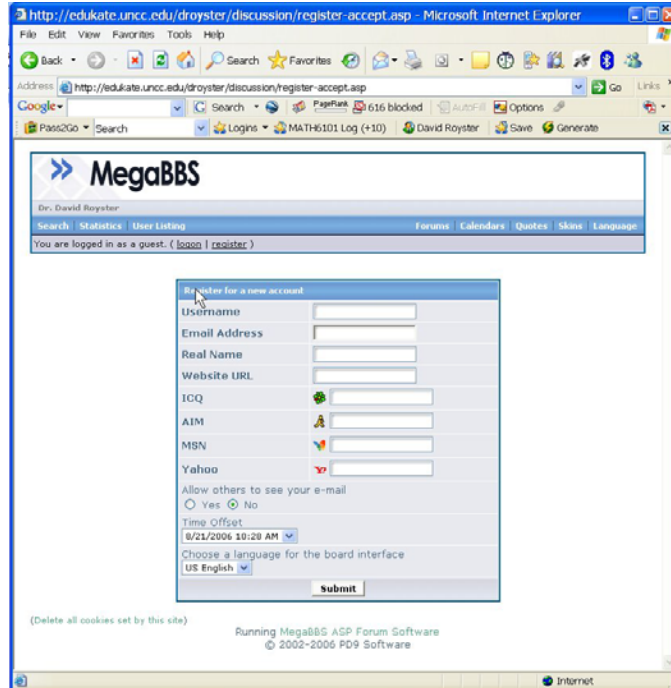
1. Open your web browser and point it to: <http://edukate.uncc.edu/droyster/discussion>  
You will see the following screen.



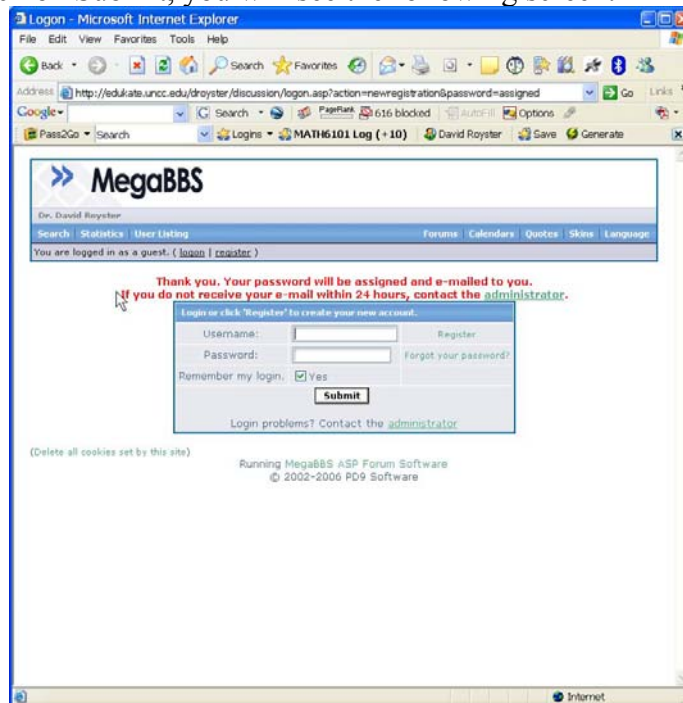
2. The first time you go to the webpage you need to register, so click the register link in the top left corner. This will bring you to the following page.



3. You need to click on the “I agree to the terms above” and then click on Submit.



4. You need to choose and input a Username, and complete the blanks for Email Address and Real Name. We do not need the remaining information, so you may leave it blank. When you click on Submit, you will see the following screen:



5. I will receive the notification and will add you to the list as soon as I get the request. The password will be emailed back to you. Once you logon to the system, you will be able to change your password to something that you want.
6. We will discuss all homework problems online via this BBS. This will allow everyone to see everything that has been asked and answered regarding the homework problems. If

we have a discussion offline, I will ask that the person (or persons) involved log onto the BBS and add the discussion to the list.

There are no questions about the material that you should feel uncomfortable in putting on the BBS. We are all here to learn and we learn in many different ways and through many different questions. Questions that are personal in nature (such as requesting grades or asking about how points were allocated) should not be discussed here and we will deal with those separately.

We will have to come to some agreement about the manner in which we type mathematics in the BBS. We will discuss this in class and we will modify it as we need to during the course. While using the Rich Text Editor will allow you to insert some symbols ( $\leq \geq \sum \infty \sqrt{\approx \neq \prod \cap \partial \mathbb{B} \Gamma \Delta \mathbb{E} \mathbb{Z} \mathbb{H} \Theta \Lambda \Xi \Pi \Sigma \Phi \Psi \Omega \alpha \beta \gamma \delta \varepsilon \zeta \eta \theta \iota \kappa \lambda \mu \nu \xi \omicron \pi \rho \varsigma \sigma \tau \upsilon \phi \chi \psi \omega$ ) and subscripts,  $x_2$ , and superscripts,  $x^2$ ; it does not allow us to input other mathematical symbols. Also, some readers may not like the symbols that the Rich Text Editor uses.

### Typing Mathematical Symbols

Let us begin by using the following convention when typing mathematics into emails and posts:

$a^b$	<code>a^b</code>	$\int f(x)dx$	<code>Int ( f ( x ) , x )</code>
$a_n$	<code>a_n</code>	$\int_a^b f(x)dx$	<code>Int ( f ( x ) , x=a . . b )</code>
$\alpha$	<code>alpha</code>	$\sum x_n$	<code>Sum ( x_n , n )</code>
$\beta$	<code>beta</code>	$\sum_{k=1}^n z_k$	<code>Sum ( z_k , k=1 . . n )</code>
$\pi$	<code>pi</code>	$\sqrt{x}$	<code>sqrt ( x )</code>
$\infty$	<code>infy</code>	$\sqrt[p]{z}$	<code>root ( p , z )</code>
$\leq$	<code>lte or &lt;=</code>	$\prod_{k=1}^n x_k$	<code>Product ( x_k , k=1 . . n )</code>
$\geq$	<code>gte or &gt;=</code>		
$\neq$	<code>ne or &gt;&lt;</code>		

We will add others as needed.