Curriculum Vitae
KEVIN BRYCE McLEOD

PERSONAL INFORMATION

Date of Birth	June 19, 1957
Place of Birth	Oxford, England
Nationality	British
Current Residency	US Resident (Green Card)
Current Address	Department of Mathematical Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI 53201-0413, USA
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EDUCATION/DEGREES AWARDED

1968-1975		John Mason High School, Abingdon, England
1975-1978	B.Sc. (Mathematics)	Imperial College, London, England
1978-1984	Ph.D. (Mathematics)	University of Minnesota, Minneapolis, MN, USA

ACADEMIC EMPLOYMENT

1978-1984	Teaching Assistant	University of Minnesota
1984-1987	Visiting Assistant Professor	Indiana University, Bloomington, IN
1987-1992	Assistant Professor	University of Wisconsin-Milwaukee
1992-present	Associate Professor	University of Wisconsin-Milwaukee
1993-1996	Associate Chair	University of Wisconsin-Milwaukee
1996-1997	Honorary Research Fellow	University of Auckland, New Zealand
Fall 2001	Assistant Chair	University of Wisconsin-Milwaukee

RESEARCH INTERESTS

My research and scholarship is concerned with the areas of Functional Analysis, Differential Equations and Mathematical Physics. These areas intersect in my current principal interest: the mathematical structure of Quantum Mechanics.
I have 14 research publications, and 3 graduate students: Michael Karls (graduated 1993), Daniel Knopf (graduated 1999) and Robert Kelnhofer (still working).

TEACHING AWARDS AND ACTIVITIES

I have always been interested in good teaching: as a Teaching Assistant at the University of Minnesota, I won a TA teaching award from the School of Mathematics in 1981. In 1991, the Department of Mathematical Sciences at UWM was asked to recommend 3 faculty members for a teaching merit raise, and I was one of the 3 recommended. I have consistently volunteered to assist with the Department's annual orientation for its Teaching Assistants, and for several years I was the sole administrator of the Ernst Schwandt teaching award. As such, I looked at teaching evaluations for all our TAs, and observed the top 5 or 6 cnadidates in the classroom. Since 1989, with the exception of my sabbatical year, I have been the Department's co-ordinator for the Putnam Mathematical Competition. (The

'Putnam exam' is a challenging national examination in mathematics, designed to identify particularly talented undergraduates. I typically run weekly practice sessions throughout the Fall semester, and then proctor the exam on the first Saturday in December.)

In addition to these ongoing activities, I have undertaken two major projects related to teaching while at UWM: an Honors Calculus course, and teaching with technology, including the Department's Calculus Computer Lab. I have also developed a course on history of science for the Honors Program.

Honors Calculus In 1992 I asked myself how I would teach calculus if I could design the course from scratch. The result was UWM's Honors Calculus sequence (Math 221/222). This 2-semester sequence covers material roughly equivalent to the standard 3-semester calculus sequence, but in a different (and more efficient) order, and often in greater depth. Students with a strong algebra background can thus save themselves a semester, but I have always felt that a more important aspect of the course is the amount of independent project work that the students have to complete. Typically, they work in groups of 2 or 3, and have to complete 3 three-week projects each semester. They are warned that the projects can be done in 3 weeks, but not if they delay starting until the last week. The first project is usually turned in incomplete by most groups, but their time-management skills rapidly improve, and by the end of the first semester all groups are meeting the deadline: a useful skill in any future employment!

Although Honors Calculus is offered by the Mathematics Department, I worked closely with the Honors Program to set it up, and the collaboration has continued each year as students are invited to enroll for the course. (I send out invitation letters to incoming students who test sufficiently well on the math placement test; students already at UWM may qualify for the course with high grades in Math 116 and 117). The first year I taught the course, I wrote approximately 350 pages of notes. I have revised these notes on a regular basis, and they have been used successfully to teach the course, not only by me but also by Professors Wade and Milani. Each of these two has taught the course twice; I have taught it each other year since 1993, always on a 5-day-a-week basis.

Teaching with Technology Many of the projects in the Honors Calculus sequence are designed to be done with computers. Since the projects cover a wide range of calculus topics and applications, they were first written to be done with several different computer programs. Although the course was still successful, I was very pleased that by the second year (1994), UWM had obtained a site license for the computer algebra system *Maple,* and I rewrote the projects to use this program. As such, I was one of the first members of the Department to use *Maple* in undergraduate teaching, and I have used it in many of my courses ever since.

In 1998 I was largely responsible for helping the Department to obtain funding from the College of Letters and Science to build and equip a calculus computer lab. Computer-oriented calculus sections were first taught in the lab in 1999, although I myself first taught in it the following year. This is now my second year of teaching computer-oriented calculus, and *Maple* worksheets that I have developed for 231 and 232 can be found through my home page at the URLs listed below.

My main teaching project for the next few years is to move the Department more heav-

ily towards teaching calculus with *Maple.* This will involve investment in hardware, and I have made and am continuing to make grant applications to fund another computer lab. It will also involve easing the transition for my colleagues to teach in this fashion. This is one reason why I write self-contained worksheets, make them publicly available on my website, and encourage other lab instructors to do the same. By the end of this academic year, I hope to have created a central Department data bank of *Maple* worksheets and other resources, so that instructors teaching in the lab for the first time do not have to 'reinvent the wheel'.

Honors 200 Every honors student must take at least two sections of Honors 200: The Making of the Modern Mind. The exact topic varies depending on the instructor, but the course is run as a seminar, with an emphasis on reading original texts and writing (and re-writing) papers. Remarkably, the role of Science in the making of the modern mind was rarely, if ever, covered. included. I therefore spent part of my sabbatical year developing a course on History of Science suitable for an Honors 200 section. My original intention, which was not perfectly implemented, was to choose one 'big idea' from each of Physics, Chemistry and Biology, and read about them in the words of their discoverers. In the course as actually taught, we read Thomas Kuhn on the Copernican Revolution, Lavoisier on the beginnings of quantitative chemistry (including the Law of Conservation of Mass), Darwin on the Origin of Species, Watson on the discovery of DNA ('The Double Helix') and, time permitting, Feynman on quantum theory ('QED'). I taught the course for the first time in 1998, and was asked to teach it again in 2000.

URLs

The following are direct links to some of my web pages, containing additional information or examples of the course materials described above. (They can all be accessed also through links on my home page.) All can be reached with any web browser, but to open the *Maple* worksheets, *Maple V,* Release 5 or higher, must be installed on your machine. If you are using Netscape 4.x, clicking on any worksheet should cause *Maple* to open automatically. With Internet Explorer or Netscape 6.0, it may be necessary to save the file to disk and then open it with *Maple.* The Honors Calculus notes are available in .dvi format, and (in subdirectories) as LaTeXfiles.

My home page	`http://www.uwm.edu/~kevinm`
Honors Calculus notes	`ftp://ftp.uwm.edu/pub/Math/kevinm/honors/`
231 website	`http://www.uwm.edu/~kevinm/teaching/231/frames.htm`
Maple worksheets (231)	`ftp://ftp.uwm.edu/pub/Math/kevinm/teaching/231/worksheets`
232 website	`http://www.uwm.edu/~kevinm/teaching/232/frames.htm`
Maple worksheets (232)	`ftp://ftp.uwm.edu/pub/Math/kevinm/teaching/232/worksheets`

SUMMARY OF TEACHING EVALUATIONS

Question IV on the Math Department's course evaluation form is 'How would you rate the overall performance of the instructor in this class?' Possible ratings are: 1 excellent, 2 very good, 3 good, 4 fair, 5 poor. The number of each rating on this question, for each undergraduate course evaluated with this form in the years 1997-2000, is given in the table below. (I was on sabbatical in 1996-1997, so no courses are listed for Spring 1997.)

course	Ratings				
	1	2	3	4	5
Fall 1997					
Math 221	11	8	1	0	0
1997-1998					
Math 222	7	3	1	1	0
Math 221	7	8	3	0	0
1998-1999					
Math 222	6	8	1	0	0
Math 231	6	4	1	0	0
Math 221	6	8	0	0	0
1999-2000					
Math 222	9	5	0	0	0
Math 232	2	1	2	1	1

My Honors 200 sections were not evaluated on the Math Department form. The first part of the Honors Program asks students to respond on a scale from 1 to 4 to statements such as 'The course was taught effectively as a seminar with active class participation' or 'The assignments were clear'. The ratings are: 4 strongly agree, 3 agree, 2 neutral, 1 disagree. The number of statements varies from year to year, but they are always positive, so that a response of 4 is the best possible. The total number of each response from the two times I taught Honors 200 is listed below.

	Ratings			
	4	3	2	1
Fall 1998	38	25	7	2
Spring 2000	21	15	0	0

Following are sample student comments from undergraduate courses I have taught, beginning with one from the first year of Honors Calculus. (Would that they all could be so good!)

- Exceptional teaching — clear, informative. Teacher is enthusiastic, goes out of his way to help students understand, enjoys the class and students. Best blackboard technique I've seen. Wonderful presentation. Professor is very available. Class is fascinating — various topics introduced with calculus applications . . . fun! fun! fun!

Other comments from Honors Calculus:

- I thoroughly enjoyed this class. Prof. McLeod is one of the best professors I have ever had. He made a difficult subject easy to understand and very applicable. Prof. McLeod made this a class I wanted to go to.
- I liked the way it was set up: lessons, then quizzes, and then a project. The ideas all came together, usually in the project.

- Although I didn't like doing the projects at times, I thought the projects were a good learning experience.
- The class wasn't as much difficult as it was demanding. You really had to think about what you were doing.
- The text book was beautiful.
- Textbook was excellent and the price is significantly cheaper than a normal book.
- I like everything about this class, from the homework to the group projects, etc... But I REALLY like the fact that he wrote everything out on the board. (EVERYTHING!!)
- This was the best class I have had at UWM.

From Honors 200:

- Able to discourse on, and discuss with us, many different fields of science. Able to clarify or describe things to us in plainest language possible. Good people person, always available to talk (advice, etc)
- Knowledgeably conveys information in an understandable way.
- He was a great facilator and fair in grading.
- Really tells you what he means when he grades papers. Isn't afraid to tell you you're wrong.
- I liked the intellectual challenge, because we talked about things I probably never would have if it weren't for this class.
- Professor McLeod was very helpful and very encouraging. This semester I was feeling like a rebellious teenager and I thought that if I used that angst to write my papers, perhaps classical psychology here, I wouldn't feel so bad, or I could accept my failure. But no! Professor McLeod was very accepting. This acceptance gave me great confidence and great respect for him!

Since so much of my undergraduate teaching since 1993 has been Honors Calculus, with well-motivated students, enthusiastic comments might be expected. I am in some ways much prouder of the following group of comments, from students in Math 106. (Math 106 was introduced for the sole purpose of satisfying the math GER. The target population consists of students who have no need to take Math 105 for their majors, most of whom have had difficulty with math throughout their lives and have come to dislike it strongly. It is actually a beautiful course in which these students can be exposed to some *real* mathematics, albeit at a very elementary level, and I treat it as an opportunity to do some propagandising for mathematics. Looked at in this way, I think it is one of the most important course the Mathematics Department offers, and I teach it as often as I can.)

- It at times was actually fun, which I was convinced it was not.
- Excellent teacher. The course was far more interesting than anticipated.
- Kevin presented the info in a concise manner, often throwing in background stories to make it a little less dry. I really like the fact that he came in on his day off to hold study groups.
- I felt that the instructor was extremely effective in his ability to communicate ideas and concepts.
- I've always had trouble with math, but Mr. McLeod made things very easy to understand.
- The instructor was excited about math and did his best to convey that.