Teaching Dossier

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Chapter 1
Approach to Teaching

May I teach them faithfully the things they need to know, so they may face the future knowing they’re prepared, and when they think of school days, may they know their teacher cared. – R. Fogle

1.1 Philosophy

My experiences as a primary instructor for five courses and as a teaching assistant for seven academic terms from 2004 to 2010 at two universities have strengthened my belief in teaching: Dedication to teaching and students is the most important characteristic of a good teacher.

To care about students requires me to know students. I have tradition of meeting with students individually, learning their names, knowledge backgrounds, expectations, interests and special needs. These meetings provided valuable information to me so that I may best meet each student’s individual needs. My students in these courses had diverse backgrounds which challenged me to be more aware of their cultural differences, more sensitive to their individual needs, and more open to their different learning styles. It is students who make teaching a valuable experience for me to share my passion about mathematics.

Inspired by a highly respected professor, I believe learning is long-term change and teaching is helping students change. What do I want students to change? In general, I want to enable students to understand and monitor their own thought processes, to improve students’ confidence and to facilitate their acquisition of life-long learning skills. In mathematics, I want to encourage a broader interest in math, to motivate students to make an effort to learn math, to foster a desire to discover math and to instill an appreciation of the beauty of math.

In the range of teaching strategies I use to organize and present the course materials, I find the following to be particularly effective: emphasizing the interrelatedness of different areas of knowledge, designing a well organized course website with lecture notes provided,
using the combination of computer slide presentations and lecturing on blackboards, de-
signing active learning projects to encourage student participation, giving constructive
feedback to students, and promoting their self-assessments. These strategies turn out to
be effective in my classes to motivate students to learn math.

1.2 Goals, Strategies, and Evaluation Methods

My top four teaching goals are:

• to explain the subject I teach clearly at a level appropriate to students;

• to help students understand fundamental concepts; to improve students’ abilities
to think critically, analytically, and logically; to help students develop a variety of
problem-solving strategies;

• to improve students’ abilities to monitor their own thinking;

• to help students discover math by asking questions; to encourage a broader interest
in math by demonstrating both the inner beauty of math and the interrelatedness
between math and other areas of knowledge.

To reach the above teaching goals, I have used the following strategies:

• organizing course materials creatively to engage students’ thinking; designing ques-
tionnaires in the beginning of classes to know students’ knowledge background;
designing course websites including lecture notes and their preview version for note
taking, helping students summarize the key concepts and ideas of the course mate-
rials (see supporting documentation [4.1]);

• presenting fundamental concepts in a variety of ways with examples; helping stu-
dents learn to make math alive by making their own examples; designing active
learning projects to encourage student participation and collaboration and to chal-
lenge students to think critically, analytically and logically; using the combination
of computer slide presentations and lecturing on blackboards; changing the difficulty
of problems gradually to help students develop their own problem-solving strategies
(see supporting documentation [4.2]);
• meeting with students individually to give students constructive feedback and to receive feedback on my teaching; providing help to meet the special needs of students whose disabilities, health conditions or working experiences involve any difficulties for learning; using different teaching resources to improve students’ abilities to monitor their own thinking, promoting self-assessments among students by posting grade statistics for assignments, quizzes and exams (see supporting documentation [4.3]);

• demonstrating by example that questioning is the first step to discovering math and encouraging students to ask questions; demonstrating the inner beauty of math through fundamental ideas behind concepts, structures and proofs; emphasizing the interrelatedness between math and other areas of knowledge by demonstrating math ideas used in art and design and applications of math used in real life (see supporting documentation [4.4]).

To evaluate student learning I have designed questions which need thoughtful explanations rather than mere calculations and which demand creative thinking rather than mechanical memorizing (see supporting documentation [4.5]). These types of questions are effective to test students’ understanding of fundamental concepts and abilities to think and to solve problems. Besides designing written assignments, quizzes and exams, I have held individual meetings with students to discuss their understanding of lectures, performances in exams and beliefs about math.
Chapter 2

Teaching Contributions

2.1 Teaching Responsibilities

From 2007 to 2010, I have been appointed as a primary instructor for five courses at the University of Alberta and the University of Ottawa. From 2004 to 2008, I have been a full time teaching assistant at the University of Alberta for seven academic terms. The following table lists the courses I have taught as a primary instructor and my TA responsibilities involving actual classroom teaching.

Table 1: Courses I Have Taught as Primary Instructor (PI) or Teaching Assistant (TA)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Term</th>
<th>PI/TA</th>
<th>Students</th>
<th>Universities</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 1339 B</td>
<td>Winter 10</td>
<td>PI</td>
<td>66</td>
<td>Ottawa</td>
</tr>
<tr>
<td>MAT 1339 A</td>
<td>Fall 09</td>
<td>PI</td>
<td>156</td>
<td>Ottawa</td>
</tr>
<tr>
<td>Math 324 B1</td>
<td>Summer 09</td>
<td>PI</td>
<td>7</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 120 D1</td>
<td>Fall 07</td>
<td>PI</td>
<td>89</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 120 B1</td>
<td>Summer 07</td>
<td>PI</td>
<td>19</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 100 Lab EE5</td>
<td>Fall 08</td>
<td>TA</td>
<td>3</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 100 Lab EG2</td>
<td>Fall 08</td>
<td>TA</td>
<td>26</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 113 Lab A3</td>
<td>Fall 08</td>
<td>TA</td>
<td>23</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 113 Lab R9</td>
<td>Winter 08</td>
<td>TA</td>
<td>24</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 113 Lab R4</td>
<td>Winter 08</td>
<td>TA</td>
<td>24</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 113 Lab H6</td>
<td>Fall 06</td>
<td>TA</td>
<td>25</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 100 Lab J3</td>
<td>Fall 06</td>
<td>TA</td>
<td>19</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 100 Lab A4</td>
<td>Fall 06</td>
<td>TA</td>
<td>28</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 102 Lab Q4</td>
<td>Winter 06</td>
<td>TA</td>
<td>20</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 102 Lab R3</td>
<td>Winter 06</td>
<td>TA</td>
<td>21</td>
<td>Alberta</td>
</tr>
<tr>
<td>Math 100 Lab H4</td>
<td>Fall 05</td>
<td>TA</td>
<td>13</td>
<td>Alberta</td>
</tr>
</tbody>
</table>

As a primary instructor, I had the full responsibility of the class with duties including delivering lectures, preparing assignments/exams, preparing extra studying resources and providing feedback to the students. The courses I taught range from introductory level calculus and linear algebra course to advanced undergraduate course on number theory.
My class sizes range from 7 students to 156 students.

As a teaching assistant, my TA duties include grading for courses in different levels, proctoring exams, tutoring students for a large variety of courses in math help session, instructing computer labs and problem solving labs for 11 sections.

2.2 Supervising Experience

In summer 2009 I supervised several undergraduate students who enrolled in Number Theory (MATH 324) at the University of Alberta doing research projects on applications of number theory and cryptography. One student’s project on public key cryptography is included with permission in this teaching dossier (see supporting documentation [4.8]). In Fall term 2009 I co-supervised (with Professor Erhard Neher) Philippe Paradis, an undergraduate student who enrolled in Lie Algebras (MAT4142) at the University of Ottawa, doing a research project on representation categories for Lie algebras. In Summer 2010 I co-supervised (with Professor Erhard Neher) Miriam Grimberg, a NSERC undergraduate summer student, doing a research project on representation theory of finite groups.

2.3 Activities Undertaken to Improve Teaching and Learning

2.3.1 Practicum in University Teaching

At the University of Ottawa I enrolled in the credit course of Practicum in University Teaching (ESG 8300) to improve my teaching and learning. This program is offered by the Faculty of Graduate and Postdoctoral Studies and the Centre for University Teaching (CUT) to strengthen the academic teaching careers of participants.

Within this program I finished over 20 hours of instructional workshops which provide me with valuable tools to enhance my teaching and to offer a better learning experience to students. Responding to the challenges of teaching in multicultural large classes which arose from my teaching at the University of Ottawa, I found that workshops on: Pedagogical reflections on teaching in a multicultural context, linguistic diversity in the classroom, and strategies for inclusive teaching, are extremely helpful. In addition, workshops on: Integrating online components, using clickers, theatre techniques, delivering video-conference, provided constructive ideas to make effective use of technology in my
teaching. Active learning strategies are demonstrated throughout the presentation of these workshops.

A rewarding experience within this program is the mentored teaching component. I observed the teaching practices of Professor Monica Nevins in her course of Applied Algebra (MAT3343) in Winter Term 2010 on several occasions. Two of my classroom teaching events in Calculus and Vectors (MAT 1339 B) were observed by Professor Nevins and I received constructive feedback to improve my teaching. For some areas in my teaching needing improvement, Professor Nevins was able to demonstrate practical strategies in her classroom teaching. This dynamic experience of observing the teaching practices of Professor Nevins and being observed by her stimulated interactive discussions between us about the university pedagogy related to both of our courses (see supporting documentation [4.6]).

2.3.2 University Teaching Program

At the University of Alberta I enrolled in the University Teaching Program (UTP) to improve my teaching and learning. This program is offered by the Faculty of Graduate Studies and Research and the University Teaching Services with the aim to develop for graduate students an ethical, philosophical and practical basis for careers in post-secondary teaching.

Within this program I have finished more than 50 hours of formal classroom training which covers a wide range of theoretical teaching topics through seminars and workshops. Three of my teaching events (2 lectures and 1 lab) have been videotaped for feedback, discussion and assessment. Two videos have been viewed both by my teaching mentor and one other approved University Teaching Services appraiser (see supporting documentation [4.6]).

2.3.3 Teaching Seminars and Other Activities

Since effective teaching strategies vary from one discipline to another, learning from Science and Engineering professors with excellent teaching records is of great benefit to me. To this end, I attended teaching seminars organized by the Department of Math and Stat Sciences and the Faculty of Engineering at the University of Alberta. Many of my volunteer activities are teaching related and have contributed to improve the effectiveness of my teaching. For example, I have volunteered at the Society for Teaching and Learning
in Higher Education (STLHE) Conference in 2007 at the University of Alberta as a presentation assistant. Some revolutionary ideas about science education I learned from the opening talk in this conference have renewed my teaching vision and have been shared in my class to enhance student learning. Some practical drama skills I learned from a workshop in this conference have been applied to energize my classroom and to create a dynamic learning environment. Besides seminars, workshops and conferences, I have kept a teaching journal to stimulate self-reflection (see supporting documentation [4.7]).

2.4 Committee Service regarding Teaching Issues

From 2006 to 2009 I was a member of the GAME academic committee. GAME (Graduates at Alberta Mathematics Etc.) is the graduate student organization for the Department of Math and Stat Sciences at the University of Alberta. The goal of GAME is to promote social and intellectual activities among graduate students, and to further all three university goals of teaching, learning, and community outreach. One of my contributions in this committee is organizing the GAME Teaching Seminar which is a series of talks given by faculty members and senior graduate students with demonstrated strengths in teaching. The primary goal of the GAME Teaching Seminar is to address some difficulties of teaching math courses at the university level. The following table lists the GAME Teaching Seminar talks I have organized (or co-organized).

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title of Talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-3-3</td>
<td>Andy Liu</td>
<td>Teaching Calculus and Calculus Labs</td>
</tr>
<tr>
<td>2006-3-10</td>
<td>Gerda de Vries</td>
<td>Teaching Mathematics to Undergraduates</td>
</tr>
<tr>
<td>2006-3-24</td>
<td>Ted Lewis</td>
<td>Teaching Math-phobic Students</td>
</tr>
<tr>
<td>2006-3-31</td>
<td>Walter Allegretto</td>
<td>Some Thoughts on Teaching Mathematics</td>
</tr>
<tr>
<td>2006-9-21</td>
<td>Awards Winners</td>
<td>Strategies of Teaching as a Graduate Student</td>
</tr>
<tr>
<td>2006-10-13</td>
<td>Mazi Shirvani</td>
<td>Strategies for Teaching Large Math Classes</td>
</tr>
<tr>
<td>2006-11-10</td>
<td>Andy Liu</td>
<td>Designing a Course</td>
</tr>
<tr>
<td>2007-9-26</td>
<td>Gerda de Vries</td>
<td>Mathematicians Must Speak</td>
</tr>
<tr>
<td>2007-10-31</td>
<td>Andy Liu</td>
<td>Some Thoughts on Teaching</td>
</tr>
<tr>
<td>2007-11-28</td>
<td>Sean Graves</td>
<td>Tell Me I Forget, Involve Me I Understand</td>
</tr>
<tr>
<td>2008-9-17</td>
<td>George Peschke</td>
<td>Web Authoring Using WMATH</td>
</tr>
</tbody>
</table>
Chapter 3

Reflections on and Assessment of Teaching

3.1 Documentation of Teaching Results

3.1.1 Teaching Evaluation Results

The course evaluation results with written comments for 5 courses and 11 labs I taught are provided in this teaching dossier. Additional comments freely given by students through emails and letters are also included here with permission (see supporting documentation [4.9]). The following tables give a quick view of the students ratings to some major questions. All ratings are out of 5.0.

Table 3: Course Evaluation Results at the University of Alberta

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Term</th>
<th>Q23</th>
<th>Q24</th>
<th>Q25</th>
<th>Q51</th>
<th>Q9</th>
<th>Q26</th>
<th>Q21</th>
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</thead>
<tbody>
<tr>
<td>Math 324 B1</td>
<td>Summer 09</td>
<td>4.8</td>
<td>4.9</td>
<td>4.9</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
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<tr>
<td>Math 120 D1</td>
<td>Fall 07</td>
<td>3.7</td>
<td>4.5</td>
<td>4.3</td>
<td>4.8</td>
<td>4.9</td>
<td>4.6</td>
<td>4.6</td>
</tr>
<tr>
<td>Math 120 B1</td>
<td>Summer 07</td>
<td>3.9</td>
<td>4.5</td>
<td>3.8</td>
<td>4.5</td>
<td>4.8</td>
<td>4.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Math 100 Lab EG2</td>
<td>Fall 08</td>
<td>4.0</td>
<td>4.7</td>
<td>4.2</td>
<td>4.7</td>
<td>4.8</td>
<td>4.7</td>
<td>4.7</td>
</tr>
<tr>
<td>Math 113 Lab A3</td>
<td>Fall 08</td>
<td>3.6</td>
<td>4.2</td>
<td>4.0</td>
<td>4.6</td>
<td>4.8</td>
<td>4.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Math 113 Lab R9</td>
<td>Winter 08</td>
<td>3.2</td>
<td>4.4</td>
<td>4.4</td>
<td>4.8</td>
<td>4.9</td>
<td>4.3</td>
<td>4.8</td>
</tr>
<tr>
<td>Math 113 Lab R4</td>
<td>Winter 08</td>
<td>3.4</td>
<td>4.4</td>
<td>4.2</td>
<td>4.8</td>
<td>4.9</td>
<td>4.6</td>
<td>4.4</td>
</tr>
<tr>
<td>Math 113 Lab H6</td>
<td>Fall 06</td>
<td>3.7</td>
<td>4.3</td>
<td>3.9</td>
<td>4.5</td>
<td>4.8</td>
<td>4.1</td>
<td>4.3</td>
</tr>
<tr>
<td>Math 100 Lab J3</td>
<td>Fall 06</td>
<td>3.5</td>
<td>4.1</td>
<td>4.0</td>
<td>4.7</td>
<td>4.9</td>
<td>4.6</td>
<td>4.6</td>
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<td>Math 100 Lab A4</td>
<td>Fall 06</td>
<td>3.9</td>
<td>4.1</td>
<td>4.0</td>
<td>4.4</td>
<td>4.8</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Math 102 Lab Q4</td>
<td>Winter 06</td>
<td>2.8</td>
<td>4.1</td>
<td>3.4</td>
<td>4.3</td>
<td>4.7</td>
<td>3.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Math 102 Lab R3</td>
<td>Winter 06</td>
<td>3.3</td>
<td>4.2</td>
<td>3.9</td>
<td>4.2</td>
<td>4.6</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Math 100 Lab H4</td>
<td>Fall 05</td>
<td>3.6</td>
<td>4.1</td>
<td>4.1</td>
<td>4.6</td>
<td>4.9</td>
<td>4.3</td>
<td>4.6</td>
</tr>
</tbody>
</table>

- Q23: I am motivated to learn more about the subject areas.
- Q24: I increased my knowledge of the subject areas.
- Q25: Overall, the quality of the course content was excellent.
• Q51: The instructor was well prepared.

• Q9: The instructor treated the students with respect.

• Q26: The instructor provided constructive feedback.

• Q221: Overall, this instructor was excellent.

Table 4: Course Evaluation Results at the University of Ottawa

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Term</th>
<th>Q1</th>
<th>Q4</th>
<th>Q9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1339 A</td>
<td>Fall 09</td>
<td>4.75</td>
<td>3.96</td>
<td>4.05</td>
</tr>
<tr>
<td>Math 1339 B</td>
<td>Winter 10</td>
<td>4.93</td>
<td>4.29</td>
<td>4.44</td>
</tr>
</tbody>
</table>

• Q1: I find the professor well prepared for class.

• Q4: I think the professor conveys the subject matter effectively.

• Q9: I find the professor as a teacher is excellent.

In Winter Term 2010 I designed and conducted a Feedback Questionnaire early in the term (before the first midterm) to obtain formative feedback from my students. The questionnaire consisted of 10 multiple choice questions and 2 open ended questions. The purpose of this activity was to understand the needs of my students and improve the learning environment before the end of semester course evaluation. Nancy Vézina and Jovan Groen at the CUT assisted me in selecting questions and analyzing the results. A summary of the feedback I got is included in this teaching dossier (see supporting documentation [4.9]).

3.1.2 Awards Received for Teaching Activities

In 2008 I received the Zita and John Rosen Teaching Award at the University of Alberta. The purpose of this award is to give special recognition to a graduate student Principle Instructor who is an especially skilled and dedicated teacher. Principal Instructors are those who are fully responsible for a course, including lecturing, course and lecture planning, preparing and grading assignments and examinations, etc. The four adjudication themes are: Teaching Evaluation Results, Innovation, Constructive Rapport with Students, Dedication to Teaching and Students. Only one award is given in 2008. Copies of support letters from students for this award have been provided in this teaching dossier (see supporting documentation [4.10]).
3.2 Reflections on Teaching and Learning

In summary, the above assessment shows that I have been successful in preparing and delivering lectures, giving feedback to students, respecting students and meeting student needs. The active learning strategies I tried in my classes effectively motivated my students to learn math. Teaching large classes with diverse students from different backgrounds is a challenge to me. However, it also presents me with an opportunity to explore ways to use technology more effectively in my teaching. I find the combination of computer slide presentations and lecturing on blackboards to be particularly effective. One advantage of this strategy is that using computer slides gives me more chances to face students and pay more attention to their reactions in classes. This strategy is especially effective at the beginning of the term as I get to know my students. For the steps of problem solving and proofs in mathematics, I normally use blackboards to explain. Computer slide presentations allow me to have more time to go through those steps, which needed using the blackboard, more slowly for students to have a better understanding.

3.3 Future Plans

There are three areas of my teaching that I would like to continue to develop in the near future. Chief among these is to explore ways to teach in a multicultural context and to create an interactive classroom. I also plan to gain more experience in supervising undergraduate students doing research projects. The last major goal I have for the near future is to build a strong teaching team with my teaching assistants and instructors for other sections.
Chapter 4

Supporting Documentation

The following is a complete list of the documents provided in this teaching dossier as supporting documentation.

[4.1] sample questionnaire used in Mat 1339 A Fall 09;
[4.2] sample active learning projects designed in Mat 1339 B Winter 10; sample combination of computer slides presentations and lecture notes on blackboards used in Mat 1339 B Winter 10;
[4.3] sample grade statistics posted in Mat 1339 A Fall 09;
[4.4] sample notes of solving applied optimization problems in Mat 1339 B Winter 10;
[4.5] sample exam questions designed in Math 324 B1 Summer 09;
[4.6] completion forms of University Teaching Program at the University of Alberta; completion forms of Practicum in University Teaching at the University of Ottawa;
[4.7] sample teaching journal entries;
[4.8] sample student’s project on public key cryptography in Math 324 B1 Summer 09;
[4.9] the course evaluation results with written comments for 11 lab sections and 5 courses I taught from 2004 to 2010; summary of the feedback questionnaire conducted in Mat 1339 B Winter 10; additional comments freely given by students;
[4.10] letters of support from students for the 2008 Zita and John Rosen Teaching Award at the University of Alberta.
Contents:

- sample questionnaire used in Mat 1339 A Fall 09
In Mat 1339 A Fall 09 I did the following questionnaire at the beginning of the class. 126 out of 156 students responded to the questionnaire.

Question 1: Is this your first undergraduate level math course? If not, list other undergraduate level math courses you have taken.
Answer: Yes 99; No 22; N/A 5.

Question 2: Is there any math teacher who has inspired you? If so, what makes his or her teaching special?
Answer: Yes 64; No 50; N/A 12.
Some key words appeared in the description of inspiring teachers include lots of examples (5), detailed visual explanation of concepts, patience (7), make sure students understand every concept (5), keep things interesting, incredible knowledge in all aspects of mathematics, problem solving skills and knowledge (4), provide a lot of extra help (3), giving the easiest ways to solve a problem, willingness to stay after class to help students (8), supportive and encouraging (2), informative, kind (2), thoughtful, excellent reviews, passionate about math (4), clear explanation (12), explain why things happen, make math fun (2), interact well with students (4), explain in different ways, explain lessons slowly and make it easy to understand, devotion (2), help students reach their full potential, precise and concise notes, speak clearly, make fairly easy way to solve extreme hard questions, lively character, teach different ways about thinking about math, motivate students, know everyone’s strengths, convey lessons in unusual ways, energetic and friendly, slides, personality, smaller class size, dynamic and exciting, discuss real-life situation (2), go over the basics and let us read the text to get the details, ability of managing time and class.

Question 3: What is your most favorite math book?
Answer: Yes 36; No 72; N/A 18.
Most of the books mentioned are textbooks in high school with a few exceptions.
- *The grapes of math* by Greg Tang.
- *One fish two fish* by Dr. Seuss.
- *Paint by numbers*.
- *The predictors* by Thomas Bass who also wrote *The eudaemonic pie*.

Question 4: Which part of math don’t you like?
Answers: graph, long drown-out formulas, limits, geometry, trig identities, word problems, functions, equations, vectors, long division, finance, matrices, polynomial, log, statistics, derivatives, asymptotes, algebra, confusing letters and numbers together, theorems, probability, problem solving, calculations, repetition.
- cannot visualize the mechanics or applications that are behind the formulas.
• what I don’t understand.
• having to use formulas without knowing why I need to use them.
• algebra taken as separate from its geometric representations.
• I don’t like that it’s black and white, either right or wrong.

Question 5: How do you like math in general? What’s your general belief about math?
Answer:
• hard but fun when you understand it.
• I like math. It trains you to think logically.
• It’s alright but finding one answer can be frustrating.
• It can be soothing to work through a series of exercises. As long as I stay on top of the work and make sure I understand concepts as they are introduced, it’s not too bad.
• I like math and my belief is that it can all be learned.
• I find it intimidating.
• If it is useful in general life, it’s great. Otherwise, I tend to struggle.
• I find math very interesting and challenging.
• I find it’s important for everyday life.
• I like math and I believe it should be mandatory for all levels of education.
• Math is important, but you still need to have some talent to do well.
• It’s useful, but difficult to understand sometimes.
• Math isn’t my favorite subject but I understand that it is necessary.
• boring and difficult.
• It’s a fundamental skill for my university study.
• Math is essential for education because you use it always in everyday life.
• Concrete laws are easier for me to understand in contrast to abstract concepts. This is because math is undeniably real.
• I enjoy math because there is most often a definite answer, not several possible answers.
• useful up to a certain extent.
• I find it difficult to find practical uses for math learned.
• I like how there are solid answers, and yet multiple ways to reach them.

• Never going to use calculus in my life.

• Math is a puzzle that has different ways to go about solving the problem.

• I love math because there is only one right answer.

• I love mathematics due to its consistency of being definite, but also has the ability to transform into the impossible.

• Tedious and confusing, but interesting all the same.

• I like math, and believe it is the key to the universe in the context of structure, sciences, etc.

• Math is that some people are gifted, but some people (like myself) need to work at it to make sure we understand all the concepts.

• I like it, but I struggle with it. It is like a language and I know if I practice, I will become fluent.

• I believe that math is all around us, from the time to the money, from room number to cell-phone numbers. As an engineer, it is a must as it holds the key to my future.
Contents:

• sample active learning projects designed in Mat 1339 B Winter 10

• sample combination of computer slides presentations and lecture notes on blackboards used in Mat 1339 B Winter 10
In Mat 1339 B Winter 10 I designed the following active learning projects.

- **Project 1:** Matching functions with their difference quotients and derivatives.
  
  **Backgrounds:** Students learned the concepts of difference quotients and derivatives.
  
  **Procedures:** I designed 6 functions and calculated their respective difference quotient and derivative (which is the limit of the difference quotient). The I wrote each function, difference quotient and derivative on separate small card. Altogether I made 18 cards. Then I mixed the cards in an envelop. This will be used for one group of 3 to 4 students. In total I made 20 such envelopes. From each envelop I took one card out randomly. In the class I asked students to pair themselves into 20 different groups and each group need to match the functions with their difference quotients and derivatives. For the missing card, they need to work out the answer by themselves. At the end I asked each group to share their answer with the whole class. It took 15 minutes in class to finish this project.

- **Project 2:** Think, pair and share: Discovering properties of dot products.
  
  **Backgrounds:** Students learned the concepts of dot products and their calculation.
  
  **Procedures:** I designed five examples of calculating dot products of two vectors. In class, I asked the students to do the calculation first by themselves and then they discuss their answer with their neighbors. The purpose of the discussion is to find out the pattern in these examples and discover properties of dot products. At the end, I asked students to share their discovery with the whole class. It took 15 minutes in class to finish this project.

### Examples

a) Let \( \vec{u} = [1, 2] \) and \( \vec{v} = [0, 0] \). Then \( \vec{u} \cdot \vec{v} = 1 \cdot 0 + 2 \cdot 0 = 0 \).

b) Let \( \vec{u} = [1, 2] \). Then \( \vec{u} \cdot \vec{u} = 1 \cdot 1 + 2 \cdot 2 = 5 \). Notice that \( |\vec{u}| = \sqrt{1^2 + 2^2} = \sqrt{5} \), thus \( |\vec{u}|^2 = 5 \).

c) Let \( \vec{u} = [1, 2] \) and \( \vec{v} = [4, 5] \). Then \( \vec{u} \cdot \vec{v} = 1 \cdot 4 + 2 \cdot 5 = 14 \) and \( \vec{v} \cdot \vec{u} = 4 \cdot 1 + 5 \cdot 2 = 14 \).

d) Let \( \vec{u} = [1, 2], \vec{v} = [4, 5] \) and \( \vec{w} = [1, 3] \). Then \( \vec{u} \cdot (\vec{v} + \vec{w}) = [1, 2] \cdot [4+1, 5+3] = [1, 2] \cdot [5, 8] = 1 \cdot 5 + 2 \cdot 8 = 21 \) and \( \vec{u} \cdot \vec{v} + \vec{u} \cdot \vec{w} = (1 \cdot 4 + 2 \cdot 5) + (1 \cdot 1 + 2 \cdot 3) = 14 + 7 = 21 \).

e) Let \( k = 2, \vec{u} = [1, 2] \) and \( \vec{v} = [4, 5] \). Then \( (k\vec{u}) \cdot \vec{v} = [2, 4] \cdot [4, 5] = 2 \cdot 4 + 4 \cdot 5 = 28 \) and \( k(\vec{u} \cdot \vec{v}) = 2 \cdot 14 = 28 \) and \( \vec{u} \cdot (k\vec{v}) = [1, 2] \cdot [8, 10] = 1 \cdot 8 + 2 \cdot 10 = 28 \).

### Properties

For any vectors \( \vec{u}, \vec{v} \) and \( \vec{w} \) and scalar \( k \in \mathbb{R} \), we have

a) \( \vec{u} \cdot \vec{0} = 0 \)

b) \( \vec{u} \cdot \vec{u} = |\vec{u}|^2 \)

c) \( \vec{u} \cdot \vec{v} = \vec{v} \cdot \vec{u} \) (commutative property)

d) \( \vec{u} \cdot (\vec{v} + \vec{w}) = \vec{u} \cdot \vec{v} + \vec{u} \cdot \vec{w} \) and \( (\vec{v} + \vec{w}) \cdot \vec{u} = \vec{v} \cdot \vec{u} + \vec{w} \cdot \vec{u} \) (distributive property)

e) \( (k\vec{u}) \cdot \vec{v} = k(\vec{u} \cdot \vec{v}) = \vec{u} \cdot (k\vec{v}) \) (associative property).
• **Project 3:** Designing bonus final exam questions.

Backgrounds: Students finished learning most part of the course materials.

Procedures: I asked students to design questions which they think is most important to the course. Each student can submit one question and I compiled their questions and answers as an additional study guide for the final exam. One question from this compilation will be chosen as a bonus question in the final exam. Students also have chance to give a presentation about their designed questions to the whole class. Some of the questions are as following.

**Question 1 (submitted by Abu Chowdhury):** Find the magnitude of the equilibrant of forces of 48 newtons and 60 newtons acting on a point $A$, if the angle between the forces is $50^\circ$. Then find the angle between the equilibrant and the 48 newton force.

**Solution:**

From the figure above, the equilibrant is $-\vec{v}$. The $|\vec{v}|$, and hence $| - \vec{v} |$ is found by using the law of cosine for the triangle $ABC$.

\[
| - \vec{v} |^2 = |\vec{v}|^2 = 48^2 + 60^2 - 2(48)(60)\cos 130^\circ
\]
\[
\approx 2304 + 3600 - 5760(-0.642787609)
\]
\[
\approx 9606.5
\]

Thus $| - \vec{v} | \approx 98$ newtons.

The required angle, called $\alpha$, can be found by subtracting the angle $\angle CAB$ from $180^\circ$. Using the law of sine we can find the angle $\angle CAB$.

\[
\frac{98}{\sin 130^\circ} = \frac{60}{\sin \angle CAB}
\]

Thus $\sin \angle CAB \approx 0.469006801$ and $\angle CAB \approx \sin^{-1}(0.469006801) \approx 28^\circ$. So

\[
\alpha \approx 180^\circ - 28^\circ = 152^\circ.
\]
**Question 2 (submitted by Van Tuong Vu):** Given four points:

\[
\begin{align*}
A & (1, 2, 3) \\
B & (2, 2, 4) \\
C & (1, 0, 0) \\
D & (-1, -5, -2)
\end{align*}
\]

Prove that \(ABCD\) is a tetrahedron.

**Solution:**

Vectors \(\vec{AB} = [1, 0, 1]\) and \(\vec{AC} = [0, -2, -3]\) are two non-collinear direction vectors for the plane \(ABC\) whose normal vector is \(\vec{u} = \vec{AB} \times \vec{AC} = [2, 3, -2]\). Thus the scalar equation of the plane \(ABC\) is

\[
2x + 3y - 2z + d = 0.
\]

Since \(C(1, 0, 0)\) is on the plane, thus \(2(1) + 3(0) - 2(0) + d = 0\) which implies \(d = -2\). So the scalar equation of the plane \(ABC\) is

\[
2x + 3y - 2z - 2 = 0.
\]

We can check that \(D(-1, -5, -2)\) is not on the plane \(ABC\) because

\[
2(-1) + 3(-5) - 2(-2) - 2 = -15 \neq 0.
\]

So \(ABCD\) are not in the same plane and they form a tetrahedron.
**Question 3 (submitted by Lindsay Armstrong):** If $\vec{u} = [4, -2]$ and $\vec{v} = [3, 8]$, does $|2\vec{u}| + |3\vec{v}| = |2\vec{u} + 3\vec{v}|$? Justify your answer.

**Solution:** We can calculate

$$|2\vec{u}| = |[8, -4]| = \sqrt{8^2 + (-4)^2} \approx 8.9$$

$$|3\vec{v}| = |[9, 24]| = \sqrt{9^2 + 24^2} \approx 25.6$$

So on the left side we get

$$|2\vec{u}| + |3\vec{v}| \approx 34.5$$

On the right side

$$|2\vec{u} + 3\vec{v}| = |[17, 20]| = \sqrt{17^2 + 20^2} \approx 26.2$$

So

$$|2\vec{u}| + |3\vec{v}| \neq |2\vec{u} + 3\vec{v}|.$$
Exponential Growth: Examples

We start with only one rabbit which can double every month. By the end of 5 months how many rabbits do we have?

<table>
<thead>
<tr>
<th>End of month</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of fishes</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>16</td>
<td>32</td>
</tr>
</tbody>
</table>

Exponential Growth: Graphs

\[ y = 2^x \]

Exponential Decay: Examples

Consider a short track speed skating competition. Play starts with 64 participants. During each round, half of the players are eliminated. How many players remain after 4 rounds?

<table>
<thead>
<tr>
<th>Rounds</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of players left</td>
<td>64</td>
<td>32</td>
<td>16</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

Exponential Decay: Graphs

\[ y = 64 \left( \frac{1}{2} \right)^x \]

Exponential Functions: Definition

The function \( y = a^x \), where \( a > 0 \) and \( a \neq 1 \), is called an exponential function with base \( a \).

- If the base \( a > 1 \), then \( y = a^x \) is increasing.
  - For example: \( y = 2^x \).
- If the base \( 0 < a < 1 \), then \( y = a^x \) is decreasing.
  - For example: \( y = \left( \frac{1}{2} \right)^x \).
Exponential Functions

Definition
The function $y = a^x$, where $a > 0$ and $a \neq 1$, is called an exponential function with base $a$.

- If the base $a > 1$, then $y = a^x$ is increasing.
  - For example: $y = 2^x$.
- If the base $0 < a < 1$, then $y = a^x$ is decreasing.
  - For example: $y = (\frac{1}{2})^x$.

Natural Number $e$

Definition
The number $e$ is the real number such that the slope of the tangent line to the graph of the exponential function $y = e^x$ at $x = 0$ is $1$.

Approximation of $e$

$e = \lim_{n \to \infty} \left( 1 + \frac{1}{n} \right)^n$

- $\left( 1 + \frac{1}{1} \right)^1 = 2.000$
- $\left( 1 + \frac{1}{2} \right)^2 = 2.250$
- $\left( 1 + \frac{1}{5} \right)^5 = 2.489$
- $\left( 1 + \frac{1}{10} \right)^{10} = 2.594$
- $\left( 1 + \frac{1}{100} \right)^{100} = 2.705$
- $\left( 1 + \frac{1}{1000} \right)^{1000} = 2.7169$

The Derivative of $y = e^x$

Theorem
The derivative of $y = e^x$ is $y' = e^x$.

Proof:
By the definition of derivatives and the definition of $e$.

Logarithmic Functions

Definition
The inverse function of $y = a^x$, where $a > 0$ and $a \neq 1$, is called a logarithmic function with base $a$ which is denoted by $y = \log_a x$.

When $a = e$, we denote $\log_e x$ simply as $\ln x$ which is called the natural logarithmic function.

Logarithmic Functions: Properties

- $\log_a a^x = x$
- $\log_a a^x = x$
- $\log_a (x_1 \cdot x_2) = \log_a x_1 + \log_a x_2$
- $\log_a \left( \frac{x_1}{x_2} \right) = \log_a x_1 - \log_a x_2$
- $\log_a x = \frac{\ln x}{\ln a}$
If the base $a > 1$, then $y = \log_a x$ is increasing.

If the base $0 < a < 1$, then $y = \log_a x$ is decreasing.

The graph of $y = \log_a x$ and the graph of $y = a^x$ are symmetric to each other about the line $y = x$.

Use logarithmic functions to find derivatives of $y = a^x$.

$$(a^x)' = (\ln a)a^x$$
Theorem The derivative of \( y = e^x \) is \( y' = e^x \).

Proof. By the first principles definition of derivatives we have

\[
(e^x)' = \lim_{h \to 0} \frac{e^{x+h} - e^x}{h} = \lim_{h \to 0} \frac{e^x \cdot e^h - e^x}{h} = \lim_{h \to 0} \frac{e^x(e^h - 1)}{h} = e^x \lim_{h \to 0} \left( \frac{e^h - 1}{h} \right) = e^x \cdot f'(0) = e^x \cdot 1 \quad \text{by the definition of } e
\]

\[
= e^x.
\]

Example 1 Let \( y = (x^3 + 2x)e^x \). Then \( y' = (3x^2 + 2)e^x + (x^3 + 2x)e^x = (x^3 + 3x^2 + 2x + 2)e^x \).

Example 2 Let \( y = e^{4x^2-2} \). Then \( y' = e^{4x^2-2} \cdot 8x \).

Example 3 Let \( y = e^x - e^{-x} \). Then \( y' = e^x - e^{-x} \cdot (-1) = e^x + e^{-x} \).

Example 4 Let \( y = e^x + e^{-x} \). Then \( y' = e^x + e^{-x} \cdot (-1) = e^x - e^{-x} \).

Example 5 Let \[
y = \frac{e^x - e^{-x}}{e^x + e^{-x}}.
\]

Then \[
y' = \frac{(e^x + e^{-x})(e^x - e^{-x}) - (e^x - e^{-x})(e^x - e^{-x})}{(e^x + e^{-x})^2}
\]

\[
= \frac{4}{(e^x + e^{-x})^2}.
\]
Contents:

- sample grade statistics posed in Mat 1339 A Fall 09
Column Statistics for: Midterm1

Count: 125
Average: 50.4
Median: 49.0
Maximum: 100.0
Minimum: 5.0
Standard Deviation: 21.93

Grade Histogram

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0.00, 10.00)</td>
<td></td>
</tr>
<tr>
<td>[10.00, 20.00)</td>
<td></td>
</tr>
<tr>
<td>[20.00, 30.00)</td>
<td></td>
</tr>
<tr>
<td>[30.00, 40.00)</td>
<td></td>
</tr>
<tr>
<td>[40.00, 50.00)</td>
<td></td>
</tr>
<tr>
<td>[50.00, 60.00)</td>
<td></td>
</tr>
<tr>
<td>[60.00, 70.00)</td>
<td></td>
</tr>
<tr>
<td>[70.00, 80.00)</td>
<td></td>
</tr>
<tr>
<td>[80.00, 90.00)</td>
<td></td>
</tr>
<tr>
<td>[90.00, 100.00)</td>
<td></td>
</tr>
<tr>
<td>[100.00)</td>
<td></td>
</tr>
</tbody>
</table>

OK
Contents:

- sample notes of solving applied optimization problems in Mat 1339 B Winter 10
Example: A rectangular field is to be enclosed by a fence on 3 sides and by a straight stream on the fourth side. Find the dimensions of the field with maximal area that can be enclosed with 1000 feet of fencing.

Solution: To translate the problem into mathematical language we need:

Step 1: Introduce variables (a picture may help organize information).

- length → l
- width → w

Step 2: Distinguish conditions (identities involving variables) and functions (related to the purpose of the question).

Condition: \(2w + l = 1000\)

Function: \(A = lw\)

So the question translates to find the maximal value of the area \(A\).

Step 3: Use condition to simplify function into one variable.

\[2w + l = 1000 \implies l = 1000 - 2w\]

\[A = lw = (1000 - 2w)w\]

\[A(w) = 1000w - 2w^2\]

Step 4: Find the domain of the function.

The domain of \(A(w)\) is \(0 \leq w \leq 500\).

Step 5: Find the critical points of the function.

\[A'(w) = 1000 - 4w = 0 \implies w = 250.\]

So the critical point is \((250, A(250)) = (250, 125000)\).

Step 6: Find the (absolute) maximum point of the function.

We compare the critical points and the endpoints: \((250, 125000), (0, 0), (500, 0)\).

So \((250, 125000)\) is the absolute maximum point of \(A(w)\).

Conclusion: When \(w = 250\) and \(l = 1000 - 2w = 500\), we get the maximal area of the field 125000.

Summary: How to solve applied optimization problems?

1- Introduce variables.

2- Distinguish conditions and functions.

3- Use condition to simplify function into one variable.

4- Find the domain of the function.

5- Find the critical points of the function.

6- Find the (absolute) maximum (or minimum) point of the function.
Contents:

- sample exam questions designed in Math 324 B1 Summer 09
Problem 1: (10)
   (i) For what $b$ does the congruence $10x \equiv b \pmod{28}$ have solutions?
   (ii) Solve the congruence $5x \equiv 3 \pmod{14}$ by using Euler’s Theorem.

Problem 2: (10)
   (i) Does the following system have a unique solution modulo $11648000 = 91 \cdot 125 \cdot 1024$? Why or why not?

   \[
   \begin{align*}
   x &\equiv 1 \pmod{91} \\
   x &\equiv 7 \pmod{125} \\
   x &\equiv 9 \pmod{1024}
   \end{align*}
   \]

   (ii) Write the ring $\mathbb{Z}/11648000\mathbb{Z}$ as a product of rings of the form $\mathbb{Z}/p^k\mathbb{Z}$ where $p$ is prime.

Problem 3: (10)
   (i) Show that the system of congruences

   \[
   \begin{align*}
   x &\equiv a_1 \pmod{m_1} \\
   x &\equiv a_2 \pmod{m_2}
   \end{align*}
   \]

   has a solution if and only if $\gcd(m_1, m_2) \mid a_1 - a_2$.

   (ii) Show that when there is a solution to the above system, it is unique modulo $\text{lcm}(m_1, m_2)$.

Problem 4: (20)
   (i) Find the remainder after dividing $2^{1000000}$ by 17.
   (ii) Find the remainder after dividing $40!$ by 1763. You can use the fact that $1763 = 41 \cdot 43$.

Problem 5: (20)
   (i) Show that if $p$ is prime and $a$ is an integer, then

   \[ p \mid a^p + (p - 1)!a. \]

   (ii) Show that if $a$ and $b$ are relatively prime positive integers, then

   \[ a^{\phi(b)} + b^{\phi(a)} \equiv 1 \pmod{ab}. \]

Problem 6: (30)
   (i) How many solutions are there to the congruence

   \[ x^5 + x - 6 \equiv 0 \pmod{36}? \]

   (ii) Can you find the solutions and express them as the least nonnegative residues (mod 36)?
Contents:

- completion forms of University Teaching Program at the University of Alberta
- completion forms of Practicum in University Teaching at the University of Ottawa
Teaching Record Book
University Teaching Program

An Initiative of the
Faculty of Graduate Studies & Research
facilitated by University Teaching Services
in cooperation with participating departments

To register for the UT Program complete the registration form on the University Teaching Program website at www.ualberta.ca/gradstudies/utp/regform.html once you have identified your Teaching Mentor. Provide your Department UT Program Coordinator with a copy of the front page of this booklet.

Name: Jie Sun

Student ID#: 1096841 E-mail: jsun@math.ualberta.ca

Department: Mathematical and Statistical Sciences

Campus address: 632 CAB Campus phone: 780-492-8691

Graduate program: Ph.D Anticipated graduation date: April 2009

Name of Teaching Mentor: Prof. Alfred Weiss

Name of Department UT Program Coordinator: Prof. Walter Allegretto

COMPLETION FORM

When you have completed all required elements of the program including the Teaching Dossier, make one copy of this page. You and the Department UT Program Coordinator should sign both the original and the copy. The signed copy should be sent to the Faculty of Graduate Studies and Research, 105 Administration Building, where the completion of the UT Program will be entered on your University transcript.

Student Declaration

I certify that the particulars furnished on this Record Book, and any materials submitted in support of these particulars, are true and complete in all respects. I understand that misrepresentation or falsification of documents are serious offences under the Code of Student Behaviour.

Signature of Student: Jie Sun Date: Nov. 14, 2008

Department UT Program Coordinator Declaration

I have examined the Teaching Record Book of the above student and certify that both the pedagogy and practicum requirements of the University Teaching Program in the Department/Faculty of Math/Sci have been satisfied. I have also verified that the teaching dossier has been approved by University Teaching Services.

Signature of Department Program Coordinator: Date: Nov. 14/08

This Record Book is the property and the responsibility of the student and must be retained for verification of participation and completion of the program. It is to be retained by the student as a permanent record of the completed components.
The Program
Departments wishing to participate in this program will submit to FGSR a written description of the procedures by which their students will satisfy the requirements of the program.

The major theoretical and practical requirements are:

Pedagogy
This covers a range of theoretical teaching topics to be examined through presentations, seminars and workshops of UTS, the student's home department, self-study, or other approved pedagogical instruction. 40-50 hours of formal classroom time is necessary to satisfy this requirement.

Although many departments will rely mainly on UTS for the provision of the pedagogical component, some will wish to satisfy part of this requirement, particularly in discipline-specific topics, with their own courses, workshops and seminars.

- Students will attend 10 designated UTS sessions (at least 15 hours) on the core areas of curriculum, instruction, evaluation, management and self-improvement.
- A record of completion of these and other required elements will be kept by the student in the teaching record book.
- Students will develop and maintain a teaching dossier, a record of teaching philosophy, experience and accomplishments.

Practicum
At least two terms of TA work or equivalent with substantial duties of actual teaching in a laboratory, clinical or classroom setting will be required. Part of this requirement may be met by other classroom activities such as outreach programs in schools. However, the equivalent of at least one term of teaching experience exclusively with post-secondary students must be included. The teaching mentor, usually a faculty member of the student's home department who is the teaching analog of the research supervisor, will supervise this activity. It is the student’s responsibility to find a teaching mentor. Clearly, a limitation of this program will be the availability of teaching experience opportunities and the individual capabilities of the students; it is not possible to guarantee such opportunities to all students wishing to participate.

A minimum of two micro-teaching events (lecture, discussion, lab or clinical) will be videotaped for feedback, discussion and assessment by the mentor and one other approved appraiser, who will also assess the teaching dossier.

A student will be deemed to have successfully completed the program on the recommendation of the department UTPProgram Coordinator and upon presentation of the record of completion of the required elements of the program to the Faculty of Graduate Studies and Research. The program must be completed prior to graduation. A narrative statement on the student's transcript will note successful completion.

A student who does not complete all of the required elements will nevertheless have in the teaching record book a formal verification of those elements that were completed.

April 2003
PEDAGOGY

The pedagogical requirement for the University Teaching Program is 40-50 hours of formal classroom time. This includes 10 Core Sessions (at least 15 hours) offered by University Teaching Services (UTS). Of these, 3 must be from the Curriculum group, 3 from the Instruction group, 2 from the Evaluation group, and 1 from each of the Management and Self-improvement groups.

Core Sessions: C=Curriculum (what to teach and how to organize it), I=Instruction (how to teach the content), E=Evaluation (did learning occur), M=Management (in and out of class), S=Self-improvement (becoming a better teacher).

The remaining pedagogical sessions could be selected from the student’s home department (i.e., discipline specific sessions), and/or from those offered regularly by UTS, as described in the department’s UT Program proposal.

Core Sessions (Credit for the UT Program is only given to students who attend an entire session. Individuals who arrive late or leave early are ineligible for Teaching Record Book signatures)

<table>
<thead>
<tr>
<th>Group</th>
<th>Session title and facilitator(s)' name(s)</th>
<th>Date</th>
<th>Hours</th>
<th>UTS Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. C</td>
<td>Preparing for Successful Lecture, David Cook</td>
<td>Sept 18</td>
<td>1.50</td>
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</tr>
<tr>
<td>2. C</td>
<td>Leadership in the Classroom; Richard Field</td>
<td>Oct 1</td>
<td>1.50</td>
<td></td>
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<tr>
<td>3. C</td>
<td>Teaching, Profession or Teaching, Vocational</td>
<td>Dec 6</td>
<td>1.50</td>
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</tr>
<tr>
<td>4. I</td>
<td>Effective Teaching: Problem-Solving Sessions</td>
<td>Sept 7</td>
<td>1.00</td>
<td></td>
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<tr>
<td>5. I</td>
<td>Delivering a Successful Lecture, David Cook</td>
<td>Sept 15</td>
<td>1.50</td>
<td></td>
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<tr>
<td>6. I</td>
<td>Teaching and Learning; Cathy Luan</td>
<td>Feb 3</td>
<td>1.50</td>
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<tr>
<td>7. E</td>
<td>Teaching and Learning; Cathy Luan</td>
<td>Feb 14</td>
<td>3.00</td>
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<tr>
<td>8. E</td>
<td>Teaching and Learning; Cathy Luan</td>
<td>Jan 30</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>9. M</td>
<td>Integrating Teaching and Research</td>
<td>Apr 4</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10. S</td>
<td>Using...what is it? Is it for me? Susan Stein</td>
<td>Apr 4</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal 15.50

Discipline Specific Sessions and/or UTS Electives

<table>
<thead>
<tr>
<th>Group</th>
<th>Session title and facilitator(s)' name(s)</th>
<th>Date</th>
<th>Hours</th>
<th>Authorized Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. S</td>
<td>Being a Mentor; Diane Taylor</td>
<td>Oct 30</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>12. S</td>
<td>Teaching Calculus and Calculus; Andy Lin</td>
<td>Mar 3</td>
<td>1.00</td>
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<tr>
<td>13. S</td>
<td>Strategies for Teaching Large Math Class</td>
<td>Oct 12</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>14. S</td>
<td>Developing Your Teaching Philosophy; Laura Smer</td>
<td>Oct 24</td>
<td>1.50</td>
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<tr>
<td>15. S</td>
<td>Teaching Dossier Preparation, Margaret Wilson</td>
<td>Oct 31</td>
<td>1.50</td>
<td></td>
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<tr>
<td>16. I</td>
<td>Delivering a Successful Lecture, Cook</td>
<td>Sept 19</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>17. S</td>
<td>Teaching and GTA Expectation: Identifying students in distress; Steven Barlock</td>
<td>Jan 23</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>18. C</td>
<td>GTA - Planning, Teaching Activities and Discussions</td>
<td>Jan 23</td>
<td>1.50</td>
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<tr>
<td>19. H</td>
<td>GTA - Choosing the Right Instructional Methods: Guidelines for GTA's</td>
<td>Jan 2</td>
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<tr>
<td>20. C</td>
<td>GTA - Creating a Frustration-Free Research Assignment</td>
<td>Jan 4</td>
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Subtotal 14
### Additional Sessions Cont'd

<table>
<thead>
<tr>
<th>Group</th>
<th>Session title and facilitator(s) name(s)</th>
<th>Date / Time</th>
<th>Hours</th>
<th>Authorized Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. C</td>
<td>ETA - Preparing for Successful Lectures, David Cook</td>
<td>2006.5.4</td>
<td>1.50</td>
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<tr>
<td>22. I</td>
<td>Developing Successful Lectures: David Cook</td>
<td>2006.5.4</td>
<td>1.50</td>
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<tr>
<td>23. I</td>
<td>Integrating Teaching and Research: Linda Vandenberg</td>
<td>2006.5.4</td>
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<tr>
<td>24. C</td>
<td>Integrating Teaching and Research: Emily Molloy, Corinne Moe</td>
<td>2006.5.21</td>
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<tr>
<td>25. I</td>
<td>Cultivating Content - Learning Environments</td>
<td>2006.5.25</td>
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<tr>
<td>26. S</td>
<td>Teaching Paper Presentation: Heather Frenken</td>
<td>2006.5.27</td>
<td>1.50</td>
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<tr>
<td>27. W</td>
<td>Strategies of Teaching - Kellogg, Sheila J.</td>
<td>2006.5.29</td>
<td>1.60</td>
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<tr>
<td>28. I</td>
<td>The Power of Questioning: Dave Coss</td>
<td>2006.5.27</td>
<td>1.00</td>
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<tr>
<td>29. I</td>
<td>Best Practices for Academic Integrity: Deborah Looius</td>
<td>2006.5.17</td>
<td>1.50</td>
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<tr>
<td>30. S</td>
<td>Greeting the Media: Octavia Graham</td>
<td>2006.5.15</td>
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<tr>
<td>31. I</td>
<td>Teaching Large Service Classes: Beth Milner</td>
<td>2006.5.15</td>
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<tr>
<td>32. I</td>
<td>Designing a Course: Professor Andy Lin</td>
<td>2006.5.15</td>
<td>1.50</td>
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<tr>
<td>33. I</td>
<td>Teaching - Rosenau Memorial Lecture: Professor Carl Marrahee</td>
<td>2006.5.24</td>
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<tr>
<td>34. I</td>
<td>Developing - Preparing for the Application: Professor John P. McGarvey</td>
<td>2006.5.24</td>
<td>1.00</td>
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<tr>
<td>35. S</td>
<td>Designing an Engineering Project: Professor Mark R. Kostick and Dr. J. Kotsis</td>
<td>2006.5.28</td>
<td>1.00</td>
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Sub Total: 20255  
Total: 50.00

### PRACTICUM

**S** = Satisfactory, **E** = Excellent  
Description of Teaching Practice and hours, if appropriate (e.g., classroom teaching or other as described in departmental proposal)  
Signature of Teaching Mentor  
S/E

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Teaching Practice and hours</th>
<th>Signature of Teaching Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 1/04 - Apr 30/05</td>
<td>Full Time Teaching Assistant</td>
<td>[Signature] S</td>
</tr>
<tr>
<td>Sept 1/05 - Apr 30/06</td>
<td>Full Time Teaching Assistant</td>
<td>[Signature] S</td>
</tr>
<tr>
<td>Sept 1/06 - Dec 31/06</td>
<td>Full Time Teaching Assistant</td>
<td>[Signature] S</td>
</tr>
<tr>
<td>July 9/07 - August 15/07</td>
<td>Teach Math 120 81</td>
<td>[Signature] S</td>
</tr>
<tr>
<td>Sept 5/07 - Dec 5/07</td>
<td>Teach Math 120 1A</td>
<td>[Signature] S</td>
</tr>
<tr>
<td>Jan 7/09 - Apr 30/08</td>
<td>Full Time Teaching Assistant</td>
<td>[Signature] S</td>
</tr>
</tbody>
</table>

### Microteaching

<table>
<thead>
<tr>
<th>Date</th>
<th>Signature of Teaching Mentor</th>
<th>Signature of UTS Appraiser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 14/2007</td>
<td>[Signature]</td>
<td>[Signature] S</td>
</tr>
<tr>
<td>Apr 3/2008</td>
<td>[Signature]</td>
<td>[Signature] S</td>
</tr>
</tbody>
</table>

**The Teaching Dossier was examined and approved.**  
[Signature of UTS Appraiser]  
**Nov 13/08**
University Teaching Program
Preparation Form

Name: Jie Sun  Department: Math and Stat Sciences
Phone Extension: 240-8691  E-mail: jies@ualberta.ca
Course Number/Title: Math 12031 / Basic Linear Algebra
Number of Students: 18  Date of Videotaping: Aug. 14, 2007

1. Generally, what do you hope students will get out of this particular class?
   a. Understand the fundamental concept: basis.
   b. How does the new concept relate to the old ones?

2. How will the class be conducted so that students will achieve those goals?
   a. Review what the students have already learned
      i. Start from simple examples and show the connections between old concepts and new concepts.

3. How will you decide whether or not you have been successful?
   a. From students' questions and feedbacks.

4. What have students been asked to do to prepare for this class?
   a. Review old concepts.
   b. Previous assignments: practice problems.

5. What do you expect students to be doing during the class?
   a. Listening, thinking, questioning, taking notes, discussion.

6. What was done in earlier classes to lead up to this one?
   a. Introduce the concepts which is needed for today's class.
   b. Give students homework questions which is prepared for today's class.

7. Will this class be generally typical of your teaching? If not, what will be different?
   a. Yes. But the material is the most difficult part of the class.

8. Is there anything in particular which the Teaching Mentor/Appraiser should focus on during the class?
   a. Whether I explain the concept clearly.
   b. Whether I introduce the concept in natural or not.
   c. Whether I answer students' questions clearly.
   d. Whether I organize the class well, manage the time well.

University Teaching Program  
Videotaped Teaching Event  
Analysis Form

Date: Aug 15 2007
Name of Graduate Student (Instructor): Tie Sun
Course Number/Title: Math 120 B1
Topic: Basic Linear Algebra
Name of Teaching Mentor or UTS Appraiser: Judy Ewaniec
Date Viewed: Mar 3, 2005

☐ NI (Needs Improvement)  ☒ S (Satisfactory)  ☐ E (Excellent)

Note: not all of the statements below will apply to every teaching situation. Where this form is not appropriate, please submit your comments on a separate sheet using headings A-G.

<table>
<thead>
<tr>
<th>A. Organization</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stated the purpose of the class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Defined relationship to previous class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Presented overview of class</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. Presented topics in a logical sequence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Emphasized/restated most important ideas</td>
<td></td>
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</tr>
<tr>
<td>6. Made smooth transitions between topics</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Summarized main points or asked students to do so</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Responded to problems/issues raised in class</td>
<td></td>
<td></td>
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<tr>
<td>9. Related this topic to future topics in this course</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10. Used material appropriate or suitable for time available</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11. Gave closure to the teaching session</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Style of Presentation</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Spoke audibly and clearly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Gave clear explanations</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14. Spoke at an appropriate rate for note taking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Spoke to class, not board, screen, or OHP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Responded to student questions</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>17. Used humour appropriately</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>18. Used body gestures effectively</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Maintained eye-contact with the class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Avoided distracting movements and gestures</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>C. Clarity of Presentation</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Defined new terms, concepts, principles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Gave examples, illustrations, applications</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>23. Explicitly related new ideas to familiar ones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Used alternate strategies when students did not understand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Slowed down when discussing complex ideas/concepts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Wrote legibly and clearly on board or OHP</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

The writing was very small on the board—may be very hard to write big or use an overhead. This would be easier to read if you write more legibly.
D. Use of Instructional Aids
27. Used visible/audible aids (font, colour, size, volume) [ ] [X] Write larger!
28. Displayed appropriate amount of detail [ ] [X]
29. Used technology effectively [ ] [X] No technology N/A

E. Questioning Skills
30. Asked different levels/kinds of questions [ ] [X] N/A
31. Asked questions to gauge level of understanding [ ] [X] The students asked your questions but you didn't ask them questions to gauge understanding.
32. Paused sufficiently for students to respond [ ] [X] N/A
33. Provided prompts/clues/rephrased questions as necessary [ ] [X] N/A
34. Redirected questions as necessary [ ] [X] N/A

F. Students Participation
35. Encouraged students' questions [ ] [X] Not actively N/A
36. Accepted other points of view [ ] [X] N/A
37. Encouraged student discussion [ ] [X] Not observed
38. Responded to non-verbal cues (confusion, boredom, curiosity) [ ] [X] N/A
39. Gave appropriate feedback (praise, encouragement, criticism) [ ] [X] N/A

G. Discussion
40. Encouraged all students to participate in discussion [ ] [X] N/A
41. Refrained from monopolizing the discussion [ ] [X] N/A
42. Encouraged students to challenge ideas [ ] [X] N/A
43. Brought closure to discussion [ ] [X] N/A

44. What overall impressions do you think students left this class with in terms of content or style?
   Very knowledgeable instructor, approachable and obviously passionate about the subject.

45. What were the major instructional strengths demonstrated on this videotape?
   Logical progression of the lecture and good strategy to summarise the steps for each stage. Good voice inflection!

46. What suggestions do you have for improving the instructional skills observed on this videotape?
   If there were 15 students, many of the things written on the whiteboard were too small for easy reading. Algebra is difficult for students because it is very theoretical - try to make it easy for them to see, and encourage more questions to ensure they are following you. You gave them examples which is very good - try to ask the students to help you solve the problems and intensify the praise. Demonstrations are good - but follow up with more interactivity!
   This is a difficult subject to teach and you have done a good job! Continue to work on improving visuals and interactivity.

This lecture is, by its nature, a central focus of this course. It introduces the most fundamental material of linear algebra, material that is normally considered difficult by many students but also precisely what is most important for the next courses. For this reason the criteria for doing it well necessarily involve the preparation done earlier in the course, particularly concerning the basic concepts of linear combination and linear dependence. In my opinion, the goal of this lecture should be a clear statement of the new concept of basis and a discussion, by examples, of how to construct them. Much of the task of absorbing this material is delayed until it is used many times, something that normally occurs only in the ‘next’ course.

This instructor showed good awareness of these issues: in particular, she did some review of the preliminary concepts by giving standard examples. She also used many of the other techniques in the checklist provided in the appropriate way, perhaps too many of them, in my opinion: this is one of the occasions in which a more formal lecture is effective. The purpose here is, after all, to present a vision of what comes next as simply as one can manage, considering the preparation made earlier in the course.

Considering the difficulty of doing this particular lecture well and the amount of experience of the instructor, I must conclude that she did it very well. The basic organization of the material was all there and, perhaps more important, so was some insight into the difficulties.

\[ A. \text{Wrio} \]
Form A - Mentor Information

Mentor's name: Monica Nevins

Faculty (program): Math and Stat

E-mail: mnevins@uOttawa.ca

Phone number: 613-562-5800 ext. 3529

1. Summarize how your field of expertise relates to that of your mentor's.

Professor Monica Nevins is an expert in representation theory and Lie theory. Her research is close related to my research area. We are in the same research group: algebra and Lie theory. We often meet in the weekly algebra seminar and Lie theory seminar and at the department colloquium.

2. Identify the course (code and title) within which you will be teaching.

I am currently teaching MAT 1339B Calculus and vectors in Winter 2010.

Candidate signature: [Signature] Date: Jan. 26, 2010
Form B - Mentored Teaching

Components of the mentoring experience

- I was able to observe the teaching practices of an experienced professor on several occasions.
- I was able to discuss university pedagogy with an experienced professor on several occasions.
- I planned and discussed at least two teaching sessions with my mentor during the semester.
- I taught at least twice during the semester.
- I was observed by my mentor while teaching at least twice during the semester.
- I received feedback from my mentor at least twice during the semester.

- I observed my mentor teaching on the following dates:
  MAT3343 Applied Algebra

- I discussed the planning of my first teaching session with my mentor on:
- I taught my first session on:
- I received feedback from my mentor about my first teaching session on:
- I discussed the planning of my second teaching session with my mentor on:
- I taught my second session on:
- I received feedback from my mentor about my second teaching session on:

Additional comments:
Professor Monica Nevins is a wonderful teaching mentor. Her passion for Math and her care for her students are clearly shown in her class. She sets a good example for me to be an excellent teacher. Professor Monica's innovative ideas in her teaching inspire me to be creative in my own teaching. She also gave me many good suggestions by discussing university pedagogy, visiting my class and giving me feedbacks.

Candidate's signature: [Signature]
Date: April 7, 2010
# Form C - Workshop Attendance

<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
<th>CUT Initials</th>
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</thead>
<tbody>
<tr>
<td>1. The first class: Key to Success! - Marla Arbach</td>
<td>Dec. 9, 2009</td>
<td>Nv</td>
</tr>
<tr>
<td>2. Seven Principles for Good Practice in Undergraduate Education - Nancy Vézina</td>
<td>Jan. 13, 2010</td>
<td>Nv</td>
</tr>
<tr>
<td>3. Different roles, Same Goal: How to build a strong teaching team - Marla Arbach</td>
<td>Jan. 19, 2010</td>
<td>Nv</td>
</tr>
<tr>
<td>7. Design and Delivery a Video-Conference Course - Pascal Wickett, Robert Parson</td>
<td>Mar. 24, 2010</td>
<td>Nv</td>
</tr>
<tr>
<td>8. Technological Innovations for Teaching - Mark Gareau and Nancy Vézina</td>
<td>Mar. 31, 2010</td>
<td>Nv</td>
</tr>
<tr>
<td>10. The Teaching Dossier: An Essential Tool - Nancy Vézina</td>
<td>Apr. 13, 2010</td>
<td>Nv</td>
</tr>
<tr>
<td>11. Teaching in a Multicultural Context: Some Pedagogical Reflections - Nancy Vézina</td>
<td>Apr. 21, 2010</td>
<td>Nv</td>
</tr>
<tr>
<td>12. Lookup at your Teaching as a Topic for Research - Jovan Groen</td>
<td>Apr. 29, 2010</td>
<td>Nv</td>
</tr>
</tbody>
</table>

Candidate's signature: [Signature]

Date: Apr. 29, 2010
Form A – Planning the First Teaching Session

Summarize your discussion regarding the planning of the first teaching session.

1. What content did you agree on for the first teaching session?

- Exponential Functions and their derivatives.
- Logarithmic Functions and their properties.

2. What specific teaching strategies did you discuss for the first teaching session?

- By using some fun real life examples to introduce the exponential functions. This also helps students get an idea of how to build a function out of a real life situation.
- Use the question of how to find the derivative of $y=a^x$ as the motivation to introduce logarithmic functions.

3. When will the first teaching session take place? Date? Length?

Feb. 23, 2010. 8:30 – 10:00 at MCD 121
MAT 1339 B Calculus and Vectors

Mentor’s signature: [Signature] Date: Feb. 3, 2010
Candidate’s signature: [Signature] Date: Feb. 3, 2010
Form B - Observing the First Teaching Session

Summarize your observations regarding the following components.

1. How effective were the teaching strategies used by the candidate? (e.g. ways of engaging students, type of activities used, use of technology)

   The graphical motivation for the definition of $e$ was very effective. The use of the projector for these graphs worked very well, and the transition back to the blackboard was smooth. The use of the blackboard was very effective; she responded to students' questions and suggestions on the blackboard, being very dynamic; also very organized & clear blackboard work. Having students work on a problem midway through the class was very engaging, although a less complicated problem may have been more effective.

2. How effective were the classroom management strategies used by the candidate? (e.g. starting and ending the class on time, leading effective discussions, maintaining student engagement, resolving difficult situations)

   The class ended in good time, allowing students to ask questions; although students took the slide titled "Next class" as a cue to pack up, even though there were still a few more things to say. She has a good rapport with the class; they are attentive and listen. When she asked students for a next step, three different students responded (at various times); this is good participation.

3. How effective were the candidate's communication skills? (e.g. volume, pace, eye contact, clarity)

   She is very effective at rephrasing her main points in several different ways, at a good pace conducive for learning. She makes very clear transitions between topics, and roadmaps, and highlights the most important points both verbally and on the blackboard. She can be heard throughout the class, and speaks at a good slow pace, very clear & understandable.

Mentor's signature:  
Date:  Feb 23, 2010

Candidate's signature:  
Date:  Feb 23, 2010
Form C – Feedback on the First Teaching Session

Summarize the following components as discussed with the candidate.

1. What are the candidate’s strengths based on your observations of the first teaching session?

   She repeats points in an interesting and varied way, and highlights important points. She is very well-organized and well-prepared. The flow of her lecture is very conducive for learning: motivation, definition, theorem, examples, exercises. Her pace is very good for allowing students to think & reflect.

2. What aspects of teaching need improvement?

   It would be good to try to get more feedback from the class (such as after an example is presented, or when a list of facts is reviewed) to gauge their understanding. This could include a survey-type question (where students nod their heads if all ok) or pausing, and just asking for questions while looking around the class.

3. Which of the aspects of teaching in (2) need to be improved for the second teaching session?

   Pausing and looking around the class at the conclusion of an explanation or example, to be open for questions. Some students did raise their hands after examples but the instructor had begun the next example I didn’t see.

Mentor’s signature: Monica Lewis  Date: Feb 23, 2010
Candidate’s signature: Joe Sun  Date: Feb 23, 2010
Form D – Planning the Second Teaching Session

Summarize your discussion regarding the planning of the second teaching session.

1. What content did you agree on for the second teaching session?

   - Properties of the Dot product of vectors
   - Applications of the Dot product: Angles between two vectors and vector projections
   - Introduction to vectors in three-space. This is to prepare students for next class on the cross product.

2. What specific teaching strategies did you discuss for the second teaching session?

   - In order to engage students understanding the concept of dot product, ask students the following question: whether it makes sense?
   - To explain the applications of the Dot product, more examples would be helpful. And examples can be asked from different perspective. For example, given one vector, how to find a vector which is perpendicular to the given vector. Give examples on vector projections to help students visualize the method.
   - Change the way of introducing the last part of the class to engage students attention

3. When will the second teaching session take place? Date? Length?

   Mar. 19, 2010, 10:00 – 11:30 at MCP 121
   MAT 1339B Calculus and Vectors

Mentor’s signature: Maria Newman  Date: Mar. 17, 2010
Candidate’s signature: Joe Sun  Date: Mar. 17, 2010
Form E – Observing the Second Teaching Session

Summarize your observations regarding the following components.

1. How effective were the teaching strategies used by the candidate? (e.g. ways of engaging students, type of activities used, use of technology)

She posted a list of problems (calculation to carry out with the new method) on the board and asked students to work on them, individually at first, and then discussing with their neighbors. From this, she produced, with class input, participation of the theorem with the list of properties of the dot product. This was highly effective (student both learned the calculation & the properties) and the students were very engaged.

2. How effective were the classroom management strategies used by the candidate? (e.g. starting and ending the class on time, leading effective discussion, maintaining student engagement, resolving difficult situations)

The discussion among students was lively but quite focused on the material, and Jie maintained excellent control of the class (particularly by her use of the black board to record the answers students gave and the properties they observed).

There was a new topic right at the end of class, but students (as I expected) decided to stay packed up at that point, perhaps they are too used to ending early at this point in the course?

3. How effective were the candidate’s communication skills? (e.g. volume, pace, eye contact, clarity)

Jie speaks clearly, and loudly enough to be heard throughout the class. She spoke with many student individually as they worked on the problems, and responded (and noticed) all student questions.

Mentor’s signature: Maria New Date: April 7, 2010
Candidate’s signature: Jie Sun Date: April 7, 2010
Form F – Feedback on the Second Teaching Session

Summarize the following components as discussed with the candidate.

1. What are the candidate’s strengths based on your observations of the second teaching session?

Tie is very innovative, both as it relates to choosing the technology for presenting certain parts of the course, and also as it relates to stimulating classroom discussion and participation. She has a very good sense of timing for her class, never seeming rushed, and keeping the problem discussion moving along despite the many differences in student speed at calculation.

2. What aspects of teaching need improvement?

Her classes are extremely well-structured and she gives her students an impressive amount of individual attention and opportunities at group work. She begins her classes with a review to get students on the same page.

The only point to work on is class conclusion. While she would like to preview the material for the next class, students are taking this as a cue that they may close their books (because, perhaps, they know she will cover it next class?). This is disruptive to other students and not as respectful of the professor as it should be. Tie can continue to explore different ways of wrapping up her lecture that keep students focused until she chooses to end the class.

Mentor’s signature: Maria Niewi Date: April 7, 2010
Candidate’s signature: Joe Sun Date: April 7, 2010
Form G – Mentored Teaching

**Components of the mentoring experience**

- The candidate was able to observe the teaching practices of an experienced professor.  
  - Yes [✓]  
  - No [ ]

- The candidate was able to discuss university pedagogy with an experienced professor.  
  - Yes [✓]  
  - No [ ]

- The candidate planned at least two teaching sessions during the semester.  
  - Yes [✓]  
  - No [ ]

- The candidate taught at least twice during the semester.  
  - Yes [✓]  
  - No [ ]

- The candidate was observed by an experienced professor and received feedback to improve his/her teaching.  
  - Yes [✓]  
  - No [ ]

______________________________
Name of the candidate

Jie Sun

has successfully completed the mentoring component of ESG 8300 – Practicum in University Teaching.

Additional comments:

Discussing university pedagogy with Jie, as it related to both our courses, was rewarding and useful for both of us. I learned a lot from the experience, particularly since Jie is such a responsible, caring and innovative teacher!

Mentor's signature: Maria Norris  
Date: April 7, 2010.
Form D – Teaching Dossier

In accordance with the description of the practicum:

* A teaching dossier must be prepared. The teaching dossier should include a record of teaching experience. It should also include a detailed report demonstrating the integration of material learnt during the workshops and outlining progress made throughout the course and practicum.

1. Submission of Teaching Dossier: **April 23, 2010**
   Date

2. Feedback on Teaching Dossier: **April 30, 2010**
   Date

3. Completion of all ESG 8300 components: **April 30, 2010**
   Date

Additional comments:

Excellent Teaching Dossier!

Candidate’s signature: [Signature]
Date: **April 30, 2010**

CUT signature: [Signature]
Date: **April 30, 2010**
Contents:

- sample teaching journal entries
2009-12-15
This term I have a lot of students who come back to study at the university after many years working experiences. For them, high school math is a story happened long time ago, only very vague impression left. So it is very hard for them to catch up in this course. I am glad I did my traditional individual meetings with students early this term and get to know this fact. They need a lot of encouragements to overcome their lack of confidence in this class. I am very amazed at how much efforts they put into this class. One student started his math review of grade 11, then grade 12, then this course. Some students formed a study group and met every week. They came to my office hours often to ask questions. Gradually they improved their performance in this class. One student got the highest mark in the third assignment, another got A in the final exam. It is amazing to watch their progress and I am encouraged by their persistence and hard working.

2010-1-4
The undergraduate director emailed me today about the final grades of the course I taught last term. The grade statistics showed a perfect bell curve! So the director wondered whether I applied some transform to the original grades. I explained to the director that I used the original grades and didn’t apply any transformations. The grade statistics of all assignments and midterms showed a similar pattern in that class.

2010-1-15
A student left my class 15 minutes earlier today. She sent me an email afterwards explaining that she had to go to Montreal to be with her family because of the Haiti earthquake. I am very sorry for her. I will do all my best to help her with this course.

2010-2-4
A student from last term who got A+ in my class asked the possibility to be my TA this term. Since the department already assigned a TA for me, I suggested the student to apply in the future. At the same time I had one student from my class this term who were looking for a tutor. So I introduced them to each other and it turned out helpful for both of them. I talked with the math department undergraduate director who also thought it was a good idea to give undergraduates who couldn’t get a TA position a tutor job instead.

2010-2-8
I received an email from the undergraduate director today concerning a student who was late in last Friday’s midterm exam. The student was one hour late so I didn’t allow the student to write the exam according to the university regulation. But the student’s mom complained to the department saying that the student was just 17 minutes late. The problem was solved nicely at the end and I learned a lot from the undergraduate director about how to deal with conflicts.

2010-2-22
One student from last term had serious health issues which caused the student to defer the final exam. It made my heart pain to see the student suffer from the medication.

Another student from last term had disability in learning. He took the supplementary exam last week and I am glad he passed. I could hardly imagine his difficulties in learning, but he showed great patience in his study.
<table>
<thead>
<tr>
<th>Contents:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• sample student’s project on public key cryptography in Mat 324 B1 Summer 09</td>
</tr>
</tbody>
</table>
Public Key Cryptography

Public key cryptography is a form of cryptography in which, as the name suggests, the encrypting key is made public. In other forms of cryptography, the encrypting key must be kept private (that is, be known only by the sender and receiver) because knowing the encrypting key would allow an unauthorized party to quickly construct a decrypting key and decode the message.

Public key cryptography relies heavily on the use of trapdoor functions. We call an invertible function $f$ a trapdoor function if, given the value $f(x)$, it is very difficult to calculate $x$ [1, p. 73]. If we consider, for instance, the operation of applying multiplication to the numbers 7 and 23 to calculate $7 \times 23 = 161$ then the inverse operation is the factorization of 161 to produce 7 and 23 [2, p. 42]. If we (carefully) choose primes $p$ and $q$, each having approximately 100 digits, then the computer time required to factor the integer $n = pq$ is on the order of millions of years. This computational intractability of $n$ is used by the RSA Cryptosystem [3, p. 312].

Public key cryptography is useful for secure communication amongst a large network of people. Each person publishes their key, allowing anyone to encrypt a message that only they can decrypt [2, p. 41-2]. Alternatively, because encryption/decryption in public key cryptosystems usually takes several orders of magnitude more time than current symmetric cryptosystems, public key cryptography can be used to securely communicate a key for another cryptosystem to the another person. For example, Alice sends Bob her public key, Bob generates a key for another cryptosystem, encrypts it with Alice’s public key and sends it to her. Now Alice and Bob can communicate using the other cryptosystem [3, p. 309]. Public key cryptography can also be used as a sort of digital signature, where one encrypts something with their private key. Anyone can decrypt it using their public key, which serves as verification that the message is from the sender because only the sender should have their private key.

Diffie-Hellman Symmetric Key Exchange

The Diffie-Hellman Algorithm was the first public key cryptography system invented, allowing key exchange over an unsecure channel. Each of the two communicators generates a special private/public key pair. After exchanging their public keys, they are able to combine the other persons public key with their private key to generate a shared key they can now use to encrypt/decrypt messages [1, p. 75].

The Process

Let the two communicators be named Person A and Person B. In the beginning, both communicators agree on a modulus $p$ and a base $b$ (i.e., we assume an eavesdropper may know the values $p$ and $b$). Person A chooses a number $s$ at random such that $1 < s < p − 1$
and calculates \( S \equiv b^s \pmod{p} \). Person B also chooses a random number \( t \), \( 1 < t < p - 1 \) and calculates \( T \equiv b^t \pmod{p} \). Now Person A sends \( S \) to Person B, who then calculates \( S^t \), and Person B sends \( T \) to Person A, who then calculates \( T^s \). Since
\[
S^t \equiv (b^s)^t = b^{st} = (b^t)^s \equiv T^s \pmod{p}
\]
we see that both Person A and Person B have the shared key \( S^t = T^s \) \cite{1, p. 74}.

Now, an eavesdropper must calculate \( s \) or \( t \) to determine the shared key, but this requires him to solve the discrete logarithm \( b^s = S \) or \( b^t = T \). However, the computational difficulty of solving a discrete logarithm is similar to that of factorization, which we have previously discussed as being very difficult.

An Example

Suppose that the base and modulus \( b = 17 \) and \( p = 919 \) are agreed on. Person A randomly selects \( s = 132 \) and calculates \( S \equiv b^s \equiv 17^{132} \equiv 571 \pmod{919} \). Similarly, Person B randomly selects \( t = 555 \) and calculates \( T \equiv b^t \equiv 17^{555} \equiv 434 \pmod{919} \). The values of \( S \) and \( T \) are exchanged and Person A calculates \( T^s \equiv 434^{132} \equiv 206 \pmod{919} \) and Person B calculates \( S^t \equiv 571^{555} \equiv 206 \pmod{919} \). Persons A and B may now communicate using the shared key 206.

The RSA Cryptosystem

The RSA Cryptosystem, published by Rivet, Shamir, and Adleman in 1978, has become a widely known and accepted public key encryption scheme \cite{1, p. 75}. It is based on the idea that multiplication is a trapdoor function for very large numbers.

The Process

The RSA Crypto system works as follows. First, one selects large (preferably a hundred digits or more) primes \( p \) and \( q \) and calculates \( n = pq \). To prevent the use of special factoring techniques on \( n \), one should ensure that: (i) both \( p - 1 \) and \( q - 1 \) have large prime factors; (ii) \( \gcd(p - 1, q - 1) \) is small; (iii) the decimal expansions of \( p \) and \( q \) differ in length by a few digits; and (iv) \( p \) and \( q \) should not be too close together \cite{3, p. 310, 313-4}.

Next, one selects integers \( e \) and \( d \) such that \( ed \equiv 1 \pmod{\phi(n)} \). To prevent a vulnerability discovered by M. Wiener, \( d \) should be relatively large (larger than \( \frac{2}{3}n^{0.25} \)) \cite{3, p. 311, 313-4}. To do this, one can first choose a large \( d \) relatively prime to \( \phi(n) \) and then use the Euclidean Algorithm to find \( e \).

The pair \( (n, e) \) forms one’s public key. Given the public key, the sender can create the encrypted ciphertext \( C \) from plaintext \( P \) by
\[
C \equiv P^e \pmod{n}, \quad 0 \leq C < n.
\]
Recalling that \( ed \equiv 1 \pmod{\phi(n)} \implies ed - 1 = k\phi(n) \implies ed = k\phi(n) + 1 \) for some integer \( k \), we see that the receiver can decrypt ciphertext \( C \) by

\[
C^d = (P^e)^d = P^{k\phi(n)+1} = (P^{\phi(n)})^k P \equiv 1^k P \equiv P \pmod{n},
\]

where \( P^{\phi(n)} \equiv 1 \pmod{n} \) by Euler’s theorem.

For an eavesdropper to calculate \( d \) from \( e \) they must factor \( n \) into \( p \) and \( q \), which, as previously mentioned, is computationally infeasible.

Note also that the plaintext \( P \) should be relatively prime to \( n \). If this is not the case, an eavesdropper can easily calculate \( \gcd(P, n) \neq 1 \), which implies that \( k \mid n \), but \( n \) is the product of the two primes \( p \) and \( q \), so either \( k = p \) or \( k = q \) and the eavesdropper has now factored \( n \) and can easily calculate \( d \). However, this situation is unlikely. For \( \gcd(P, n) \neq 1 \) we must have \( P \) be one of \( p, 2p, 3p, \ldots, (q - 1)p \) or \( q, 2q, 3q, \ldots, (p - 1)q \). So the probability of \( P \) being one of these values is

\[
\frac{(q - 1) + (p - 1)}{n} = \frac{q + p - 2}{pq} = \frac{1}{p} + \frac{1}{q} - \frac{2}{pq}.
\]

Because \( p \) and \( q \) should have more than a hundred digits, let’s assume \( p > 10^{100} \) and \( q > 10^{100} \). Then the probability that \( P \) is a multiple of \( p \) or \( q \) is

\[
\frac{1}{10^{100}} + \frac{1}{10^{100}} - \frac{2}{10^{200}} = \frac{2}{10^{100}} - \frac{2}{10^{200}} = 2 \cdot 10^{-100} \left[ 1 - 10^{-100} \right] < 10^{-99}
\]

since \( 1 - 10^{-100} < 1 \) and thus \( 2 [1 - 10^{-100}] < 10 \). Therefore, the probability of choosing a message not relatively prime to \( n \) is extremely small.

**An Example**

Suppose Bob wants to send the message “Leonhard Euler!” to Alice.

Alice has generated her public key in the following way. She has chosen primes \( p = 131 \) and \( q = 1613 \) so that \( n = pq = 211303 \). She calculates that \( \phi(n) = (p - 1)(q - 1) = 209560 \). She chooses \( d = 199999 \) because \( \gcd(209560, 199999) = 1 \) and, applying the Euclidean Algorithm to \( \phi(n) \) and \( d \), determines that \( 1 = 65119(199999) - 62148(209560) \). Since \( 209560 \equiv 0 \pmod{209560} \), we see that \( 1 \equiv 65119 \times 199999 \pmod{209560} \), so that \( e = d^{-1} = 65119 \). Thus, Alice’s public key is \( (n, e) = (211303, 65119) \).

Now Bob can send his message to Alice. He plans to encode it by using the ASCII standard. Since every character is represented by 8 bits in ASCII, he plans to group every two characters into 16 bit plaintext blocks. This works well because Bob’s largest possible value, \( 7F7F_{16} \), is less than \( n = 211303_{16} = 33967_{16} \). If Bob used a larger plaintext block (24 bits) it would be too large. Also, since the largest value of the ciphertext is \( 33967_{16} \), the
ciphertext will need to be padded into blocks of 5 hexadecimal digits (or 18 bits - we do not need 20 bits as $3_{16} = 0011_2$ means there would always be two leading zeros).

Thus, Bob makes the following calculations (note that all values in this table are base 16).

<table>
<thead>
<tr>
<th>Character</th>
<th>ASCII Value</th>
<th>Plaintext Block</th>
<th>Ciphertext Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>4C</td>
<td>4C65</td>
<td>057AC</td>
</tr>
<tr>
<td>e</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>6F</td>
<td>6F6E</td>
<td>0C7FD</td>
</tr>
<tr>
<td>n</td>
<td>6E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>68</td>
<td>6861</td>
<td>25E54</td>
</tr>
<tr>
<td>a</td>
<td>61</td>
<td>6861</td>
<td>25E54</td>
</tr>
<tr>
<td>r</td>
<td>72</td>
<td>7264</td>
<td>2525F</td>
</tr>
<tr>
<td>d</td>
<td>64</td>
<td>7264</td>
<td>2525F</td>
</tr>
<tr>
<td>(SPACE)</td>
<td>20</td>
<td>2045</td>
<td>201D2</td>
</tr>
<tr>
<td>E</td>
<td>45</td>
<td>2045</td>
<td>201D2</td>
</tr>
<tr>
<td>u</td>
<td>75</td>
<td>756C</td>
<td>19F3B</td>
</tr>
<tr>
<td>l</td>
<td>6C</td>
<td>756C</td>
<td>19F3B</td>
</tr>
<tr>
<td>e</td>
<td>65</td>
<td>6572</td>
<td>1048F</td>
</tr>
<tr>
<td>r</td>
<td>72</td>
<td>6572</td>
<td>1048F</td>
</tr>
<tr>
<td>!</td>
<td>21</td>
<td>2100</td>
<td>261B6</td>
</tr>
<tr>
<td>(NULL)</td>
<td>00</td>
<td>2100</td>
<td>261B6</td>
</tr>
</tbody>
</table>

Alice can now easily decode the ciphertext using her private key. For instance, since $d = 199999_{10} = 30D3F_{16}$, Alice may decrypt the first block of ciphertext as $(057AC)^{30D3F} \equiv 4C65 \pmod{33967_{16}}$. 
References


¹This text was used in the Math 222 Introduction to Discrete Mathematics course at the University of Alberta when I took it in the Summer of 2007. It presents no publication details; I believe that it is unpublished.
Contents:

• the course evaluation results with written comments for 11 lab sections and 5 courses I taught from 2004 to 2010

• summary of the feedback questionnaire conducted in Mat 1339 B Winter 10

• additional comments freely given by students
### Instructor Report

**Academic Year**: 2005/06  
**IDQ Catalog**: GFC  
**Class**: MATH 100  
**Lab**: H4  
**Instructor**: Sun, Jie  
**Date**: DEC 23, 2006

#### ITEM

<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESPONSES FROM YOUR STUDENTS</th>
<th>MEDIAN</th>
<th>RANKS OF MEAN FROM OTHER CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0 0 1 7 3</td>
<td>4.1</td>
<td>3.4 3.9 4.1 4.2 3954</td>
</tr>
<tr>
<td>22 In-class time was used effectively</td>
<td>0 0 0 7 4</td>
<td>4.3</td>
<td>3.2 4.0 4.2 4.5 4003</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>0 3 2 4 2</td>
<td>3.6</td>
<td>2.0 3.1 3.4 3.8 3954</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0 0 2 6 3</td>
<td>4.1</td>
<td>3.4 4.0 4.2 4.4 3954</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0 0 1 8 2</td>
<td>4.1</td>
<td>3.1 3.7 3.9 4.1 3954</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>0 1 5 4 1</td>
<td>3.4</td>
<td>2.4 3.8 4.2 4.7 4155</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0 0 0 5 6</td>
<td>4.4</td>
<td>3.2 4.1 4.4 4.7 4998</td>
</tr>
<tr>
<td>9 The instructor treated the students with respect.</td>
<td>0 0 0 2 9</td>
<td>4.9</td>
<td>3.6 4.6 4.9 4.8 5493</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0 0 0 7 4</td>
<td>4.3</td>
<td>2.8 3.7 4.0 4.3 4295</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0 0 1 4 6</td>
<td>4.6</td>
<td>2.7 3.9 4.3 4.6 4994</td>
</tr>
<tr>
<td>504 The textbook was helpful. For the following items, please leave blank if it is not applicable.</td>
<td>0 2 2 4 3</td>
<td>3.9</td>
<td>2.4 3.4 3.8 4.0 1696</td>
</tr>
<tr>
<td>738 The computer labs helped me understand the course material.</td>
<td>0 1 3 7 0</td>
<td>3.7</td>
<td>1.4 2.8 3.0 3.5 1431</td>
</tr>
<tr>
<td>739 The labs (non-computer) helped me understand the course material.</td>
<td>0 0 0 8 3</td>
<td>4.2</td>
<td>1.3 3.0 3.7 4.2 1465</td>
</tr>
</tbody>
</table>

Number of students responding to questionnaire: 11

Reference Group consists of FACULTY OF Science 100-Level Classes

The reference data for the Universal Items is based on results beginning with Academic Year 2000/01 while other items use all data available. Information about the contents of this report may be found on the Web at: [http://www.ualberta.ca/CNS/TSQS/IDQ_reports.html](http://www.ualberta.ca/CNS/TSQS/IDQ_reports.html)
<table>
<thead>
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<th>RESPONSES FROM YOUR STUDENTS</th>
<th>RANKS OF MEDIAN FROM OTHER CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3  4  5</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0  1  2  17  2</td>
<td>4.0  3.9  4.1  4.2  4.2</td>
</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0  1  2  15  3</td>
<td>3.2  4.0  4.3  4.5  4.7</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>2  1  9  7  2</td>
<td>3.3  3.0  3.4  3.8  4.2</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0  1  1  13  6</td>
<td>4.2  3.5  4.0  4.2  4.4</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>1  0  3  15  2</td>
<td>3.9  3.1  3.7  3.9  4.1</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>0  1  8  11  1</td>
<td>3.6  2.4  3.8  4.3  4.7</td>
</tr>
<tr>
<td>675 The instructor was well prepared.</td>
<td>0  0  0  13  6</td>
<td>4.2  3.2  4.1  4.4  4.7</td>
</tr>
<tr>
<td>677 The instructor treated the students with respect.</td>
<td>0  1  0  10  8</td>
<td>4.6  3.6  4.3  4.6  4.8</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0  2  5  6  8</td>
<td>4.1  2.8  3.7  4.0  4.3</td>
</tr>
<tr>
<td>281 Overall, this instructor was excellent.</td>
<td>0  1  5  8  7</td>
<td>4.1  2.8  3.9  4.3  4.6</td>
</tr>
</tbody>
</table>

For the following items, please leave blank if it is not applicable.

504 The textbook was helpful.
738 The computer labs helped me understand the course material.
739 The labs (non-computer) helped me understand the course material.

Number of students responding to questionnaire: 21

Reference Group consists of FACULTY OF Science 100-level Classes

The reference data for the Universal Items is based on results beginning with Academic Year 2004/05 while other items use all data available. Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/CNS/1SO/100_reports.html
Math 102 Lab R3 – Winter Term 2006

Jie Sun

Course Evaluation Comments

➢ She was able to explain things thoroughly. She was always busy so it took a while to get a question answered. I learned lots from the labs and MATLAB is a useful tool.

➢ Excellent instructor!

➢ This lab really helped me to “visualize” topics in the course.

➢ Students were always asking the same questions, rather than realizing this and telling the whole class at once what to do, instructor would continue to go answer questions one by one.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESPONSES FROM YOUR STUDENTS</th>
<th>YOUR MEDIAN</th>
<th>RANKS OF MEDIAN FROM OTHER CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
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<td>21 The goals and objectives of the course were clear.</td>
<td>0</td>
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<td>3</td>
</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0</td>
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</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>4</td>
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</tr>
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<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0</td>
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<td>4</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0</td>
<td>2</td>
<td>9</td>
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<tr>
<td>674 The instructor spoke clearly.</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>9 The instructor treated the students with respect.</td>
<td>0</td>
<td>0</td>
<td>9</td>
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<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>504 The textbook was helpful.</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

For the following items, please leave blank if it is not applicable.

738 The computer labs helped me understand the course material.
    739 The labs (non-computer) helped me understand the course material.

Number of students responding to questionnaire: 20

Reference Group consists of FACULTY OF Science 100-Level Classes
The reference data for the Universal Items is based on results beginning with Academic Year 2000/01 while other items use all data available.
Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/CNS/1SOS/IDQ_reports.html
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>1 1 3 13 6</td>
<td>3.4 3.9 4.1 4.2 4644</td>
</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0 1 2 14 7</td>
<td>3.2 4.0 4.3 4.5 4702</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>2 1 5 11 5</td>
<td>3.0 3.1 3.4 3.8 4644</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>1 1 1 14 7</td>
<td>3.5 4.0 4.2 4.4 4644</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>2 1 2 13 6</td>
<td>3.1 3.7 3.9 4.1 4644</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>0 0 7 16 1</td>
<td>2.4 3.8 4.3 4.7 4873</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0 0 0 14 10</td>
<td>3.2 4.1 4.4 4.7 5949</td>
</tr>
<tr>
<td>9 The instructor treated the students with respect.</td>
<td>0 0 1 7 16</td>
<td>3.6 4.3 4.6 4.8 6294</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0 0 2 12 10</td>
<td>2.8 3.7 4.0 4.3 5967</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0 0 1 14 9</td>
<td>2.8 3.9 4.3 4.6 5908</td>
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<tr>
<td>320 The laboratory was a valuable part of this course.</td>
<td>4 1 4 9 5</td>
<td>3.8 1.9 3.3 3.8 4.1 3585</td>
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Number of students responding to questionnaire: 24

Reference Group consists of FACULTY OF Science 100-Level Classes
The reference data for the Universal Items is based on results beginning with Academic Year 2000/01 while other items use all data available.
Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/ CNS/TGSS/IDQ_reports.html
<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
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</tr>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>1</td>
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</tr>
<tr>
<td>22 In-class time was used effectively</td>
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<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>1</td>
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<td>5</td>
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<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
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<td>2</td>
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<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>1</td>
<td>0</td>
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<tr>
<td>274 The instructor spoke clearly.</td>
<td>0</td>
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<td>2</td>
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<tr>
<td>52 The instructor was well prepared.</td>
<td>0</td>
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<tr>
<td>9 The instructor treated the students with respect.</td>
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<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>320 The laboratory was a valuable part of this course.</td>
<td>1</td>
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</table>

Number of students responding to questionnaire: 14

Reference Group consists of FACULTY OF SCIENCE 100-Level Classes

The reference data for the Universal Items is based on results beginning with Academic Year 2000/01 while other items use all data available.

Information about the contents of this report may be found on the Web at: http://wwwualberta.ca/CONS/TSQD/IDQ_reports.html
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<td>52</td>
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<tr>
<td>221</td>
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Number of students responding to questionnaire: 19

Reference Group consists of FACULTY OF SCIENCE 100-Level Classes

The reference data for the Universal Items is based on results beginning with Academic Year 2000/01 while other items use all data available.

Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/ONSS/TOSQ/ IDX_reports.html
21 The goals and objectives of the course were clear.
22 In-class time was used effectively.
23 I am motivated to learn more about these subject areas.
24 I increased my knowledge of the subject areas in this course.
25 Overall, the quality of the course content was excellent.
674 The instructor spoke clearly.
51 The instructor was well prepared.
9 The instructor treated the students with respect.
26 The instructor provided constructive feedback throughout this course.
221 Overall, this instructor was excellent.
320 The laboratory was a valuable part of this course.

Number of students responding to questionnaire: 15

Reference Group consists of FACULTY OF Science 100-Level Classes
The reference data for the Universal Items is based on results beginning with Academic Year 2005/06 while other items use all data available.
Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/AICT/TSQS/IDQ_reports.html
Jie Sun  
Course Evaluation Comments  
January – April 2008  
Math 113 Lab R4

- Willing to help all around useful TA.

- The TA was overall good, sometimes difficult to understand but usually very helpful. She did a great job explaining thing that I found unclear, and I found this lab a useful way to understand more. The sub for two lectures was very difficult to understand and it was not as beneficial.

- I really liked the solution sheets given for every quiz, as well as the organized manner in which material was presented.

- The Math lab helped me understand the Math 113 topics. The instructor was clear and direct in explaining math topics that seem to be difficult.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESPONSES FROM THIS CLASS</th>
<th>CLASS RANKS OF MEDIAN FROM OTHER CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0 0 0 6 9 4.7</td>
<td>3.4 4.0 4.1 4.3 2019</td>
</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0 0 0 3 12 4.9</td>
<td>3.2 4.1 4.3 4.6 2037</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>0 2 8 2 3 3.2</td>
<td>2.1 3.1 3.5 3.8 2019</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0 1 0 7 7 4.4</td>
<td>3.5 4.1 4.2 4.4 2019</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0 0 1 7 7 4.4</td>
<td>3.2 3.8 4.0 4.2 2019</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>0 1 2 8 4 4.1</td>
<td>2.6 3.9 4.4 4.8 2476</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0 0 0 5 10 4.8</td>
<td>3.2 4.1 4.5 4.7 2780</td>
</tr>
<tr>
<td>9 The instructor treated the students with respect.</td>
<td>0 0 0 2 13 4.9</td>
<td>3.7 4.4 4.7 4.8 2780</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0 0 1 8 6 4.3</td>
<td>2.9 3.8 4.1 4.4 2261</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0 0 0 4 11 4.8</td>
<td>2.8 3.9 4.3 4.7 2668</td>
</tr>
<tr>
<td>320 The laboratory was a valuable part of this course.</td>
<td>0 0 0 5 10 4.8</td>
<td>2.0 3.3 3.8 4.1 4205</td>
</tr>
</tbody>
</table>

Number of students responding to questionnaire: 15

Reference Group consists of FACULTY OF SCIENCE 100-Level Classes
The reference data for the universal items is based on results beginning with Academic Year 2005/06 while other items use all data available.
Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/ACCT/TSQS/IDQ_reports.html
Jie Sun  
Course Evaluation Comments  
January – April 2008  
Math 113 Lab R9

- Sun Jie was an awesome T.A. She used class time efficient and all of her lecture were great help for the quiz. She is very nice and always helpful. Good job overall. She always gave good explanation on everything!

- Cool instructor. Excellent knowledge of material. Good at explaining.

- Jie is an awesome TA, very friendly, very helpful. I really learned a lot in the lab and Jie explained concepts really well. It is good to have someone else explain math to you besides your regular lecturer because getting different point of view really helps me understand things.

- The lab is a good review for the concepts introduced in class.
The goals and objectives of the course were clear.

In-class time was used effectively.

I am motivated to learn more about these subject areas.

I increased my knowledge of the subject areas in this course.

Overall, the quality of the course content was excellent.

The instructor spoke clearly.

The instructor was well prepared.

The instructor treated the students with respect.

The instructor provided constructive feedback throughout this course.

Overall, this instructor was excellent.

The laboratory was a valuable part of this course.

<table>
<thead>
<tr>
<th>Item</th>
<th>Your Students</th>
<th>Your Median</th>
<th>Ranks of Medians</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD  D  N  4  5</td>
<td></td>
<td>Tody  25th  50th 75th</td>
</tr>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0  0  1  6  8</td>
<td>4.6</td>
<td>3.4  4.0  4.1  4.3  2430</td>
</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0  1  0  5  9</td>
<td>4.7</td>
<td>3.2  4.1  4.4  4.6  2446</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>1  4  2  5  3</td>
<td>3.6</td>
<td>2.1  3.2  3.5  3.8  2430</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0  0  2  8  5</td>
<td>4.2</td>
<td>3.5  4.1  4.2  4.4  2430</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0  1  2  9  3</td>
<td>4.0</td>
<td>3.2  3.8  4.0  4.2  2430</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>1  1  2  8  3</td>
<td>3.9</td>
<td>2.6  3.9  4.4  4.8  3025</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0  0  0  7  8</td>
<td>4.6</td>
<td>3.2  4.1  4.5  4.7  3336</td>
</tr>
<tr>
<td>9 The instructor treated the students with respect.</td>
<td>0  0  2  2  11</td>
<td>4.6</td>
<td>3.7  4.4  4.7  4.8  3336</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>1  1  2  6  5</td>
<td>4.1</td>
<td>2.9  3.8  4.1  4.4  2722</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>1  0  2  5  7</td>
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<td>2.8  3.9  4.3  4.7  3198</td>
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<tr>
<td>320 The laboratory was a valuable part of this course.</td>
<td>1  1  0  4  8</td>
<td>4.6</td>
<td>2.1  3.3  3.8  4.2  4470</td>
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</table>

Number of students responding to questionnaire: 15

Reference Group consists of FACULTY OF Science 100-Level Classes
The reference data for the Universal Items is based on results beginning with Academic Year 2005/06 while other items use all data available.
Information about the contents of this report may be found on the WEQ at: http://www.ualberta.ca/AIC7/TSQS/IDQ_reports.html
Course Evaluation Comments

- Very good TA, very nice.
- Good notes and explains concepts well.
- The lab TA made me understand concepts a lot clearer. Her method of teaching was easy to follow. I would recommend her to a friend for math help.
- It would be better if she spoke louder. Her English was good, she just didn’t have much volume to carry it.
(Administrative Text for USRI Inserted Here)

<table>
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<td>1</td>
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</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>1</td>
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<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0</td>
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<td>1</td>
<td>2</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>1</td>
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</tr>
<tr>
<td>59 The instructor treated the students with respect.</td>
<td>1</td>
<td>0</td>
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</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>320 The laboratory was a valuable part of this course.</td>
<td>1</td>
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</table>

Number of students responding to questionnaire: 23

Reference Group consists of FACULTY OF Science 100-Level Classes

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Information about the contents of this report may be found on the Web at: http://wwwualbertaaca/ACIT/TSG/100_reports.html
Course Evaluation Comments

- Great TA. Tested subjects in labs need to be clearer.
- Labs were very helpful in understanding the course content.
- Awesome 😊
- Excellent TA – did a great job of reinforcing in-class concepts and provided content in a very useful way.
- TA was excellent.
- Labs were vital as they allowed me to determine the areas of strength and weaknesses.
- Learned more in labs than in lectures.
- The lab is integral to my understanding of the material and Jie Sun was a very good TA who truly cared about us and our learning.
- Thank you for the help.
Math 100: Calculus I, Lab EE5 – Fall Term 2008

SUN, JIE

Course Evaluation Comments

1. Please comment on the quality of this Lab.
   - The lab was a crucial and very beneficial part of the Math 100 course. I can honestly say that I learned much more about Math through this lab than through the actual Math lectures in the course. The pace of the worksheet labs was adequate but I feel the quiz labs were slightly too difficult and too much time was provided. I often could sit there wasting 10 minutes of time thinking about how to solve the questions.

2. Please comment on the quality of the instruction of this Lab.
   - Jie Sun was an excellent teacher for the labs and was more than willing to help us with all the questions in the lab. Every answer was given in such a manner that it was easy to understand and there was no confusion. If there was, she would explain it even better until we understood. I learned a lot from her during the lab sessions. Thanks.
Math 100: Calculus I, Lab EE5 – Fall Term 2008

SUN, JIE

Course Evaluation Comments

1. Please comment on the quality of this Lab.
   - This lab was very useful. The small class size was the best. The instructors have time to explain things in the lab and we get the chance to ask questions.

2. Please comment on the quality of the instruction of this Lab.
   - The best. She was able to explain the subject that I did not understand in class very well for my understanding. She made time to explain labs to me in her office.
1. Please comment on the quality of this Lab.

- Very helpful in explaining the course material. Worksheets were fair and challenging. Quizzes gave a good estimation of the understanding I had of the material. Note: This evaluation is of the lab only and is NOT a reflection of my views of the course text and Much Math.

2. Please comment on the quality of the instruction of this Lab.

- Excellent!!! Jie was often available for further questions and help outside lab times.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESPONSES FROM THIS CLASS</th>
<th>CLASS MEDIAN</th>
<th>RANKS OF MEDIAN FROM OTHER CLASSES</th>
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<tbody>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0 0 4 8 4 4.0</td>
<td>3.4 3.9 4.1 4.2</td>
<td>5003</td>
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<td>22 In-class time was used effectively.</td>
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<td>3.2 4.0 4.3 4.6</td>
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<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>2 1 2 8 3 3.9</td>
<td>2.0 3.1 3.4 3.8</td>
<td>5003</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>1 1 2 4 8 4.5</td>
<td>3.5 4.0 4.2 4.4</td>
<td>5003</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0 2 3 9 2 3.8</td>
<td>3.1 3.7 3.9 4.1</td>
<td>5003</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>1 0 7 7 1 3.5</td>
<td>2.4 3.8 4.3 4.7</td>
<td>5357</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
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<td>3.2 4.1 4.4 4.7</td>
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</tr>
<tr>
<td>2 The instructor treated the students with respect.</td>
<td>0 1 0 4 11 4.3</td>
<td>3.6 4.3 4.6 4.9</td>
<td>6769</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0 2 0 5 9 4.5</td>
<td>2.8 3.7 4.0 4.3</td>
<td>5469</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0 0 3 10 3 4.0</td>
<td>2.8 3.9 4.3 4.6</td>
<td>6353</td>
</tr>
<tr>
<td>504 The textbook was helpful.</td>
<td>4 0 4 7 1 3.5</td>
<td>2.5 3.4 3.8 4.0</td>
<td>1892</td>
</tr>
<tr>
<td>738 The computer labs helped me understand the course material.</td>
<td>0 0 1 0 0 3.0</td>
<td>1.4 2.8 3.0 3.7</td>
<td>1555</td>
</tr>
<tr>
<td>739 The labs (non-computer) helped me understand the course material.</td>
<td>0 0 1 0 0 3.0</td>
<td>1.3 3.0 3.7 4.2</td>
<td>1692</td>
</tr>
</tbody>
</table>

Number of students responding to questionnaire: 16

Reference Group consists of FACULTY OF Science 100-Level Classes
The reference data for the Universal Items is based on results beginning with Academic Year 2000/01 while other items use all data available.
Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/CNS/TSCS/IDQ_reports.html
Math 120 Lec B1 – Summer Term 2007
Sun, Jie
Course Evaluation Comments

- I enjoyed this course and the instructor was well prepared and helpful when some subject areas were unclear.

- Lecture notes were very good until just past midway through the course and then a lot of stuff was missing from them.

- The entire class (myself included) has very much trouble understanding what the professor is saying.

- She is a good instructor.
  She gives help to students as much as she can.
  She is patient.

- I think the 1st week the “General Overview” was wasted time. I would have liked the time spent on the transformations b/c I think we went over those too quickly.

  - I enjoyed how helpful you were.

- Overall the course contain was clear
  However, I would of like to see some applications of the course contain.
  The first week was to me wasted but the rest of the classes were use efficiency.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESPONSES FROM THIS CLASS</th>
<th>CLASS MEDIAN</th>
<th>RANKS OF MEDIANS FROM OTHER CLASSES</th>
<th>TOTAL Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0 1 6 30 26</td>
<td>4.3</td>
<td>3.4 4.0 4.1 4.3</td>
<td>1740</td>
</tr>
<tr>
<td>22 In-class time was used effectively</td>
<td>0 1 3 27 32</td>
<td>4.5</td>
<td>3.2 4.1 4.3 4.6</td>
<td>1758</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>3 6 17 25 12</td>
<td>3.7</td>
<td>2.9 3.1 3.5 3.8</td>
<td>1740</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0 0 2 31 30</td>
<td>4.5</td>
<td>3.5 4.1 4.2 4.4</td>
<td>1740</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0 2 5 32 24</td>
<td>4.3</td>
<td>3.2 3.8 4.0 4.2</td>
<td>1740</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>1 3 20 26 13</td>
<td>3.8</td>
<td>2.5 3.9 4.4 4.8</td>
<td>2101</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0 0 1 20 42</td>
<td>4.8</td>
<td>3.2 4.1 4.4 4.7</td>
<td>2409</td>
</tr>
<tr>
<td>9 The instructor treated the students with respect.</td>
<td>0 0 0 14 49</td>
<td>4.9</td>
<td>3.7 4.4 4.7 4.8</td>
<td>2409</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0 0 4 24 35</td>
<td>4.6</td>
<td>2.9 3.8 4.1 4.4</td>
<td>1901</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0 1 3 26 33</td>
<td>4.6</td>
<td>2.8 3.9 4.3 4.7</td>
<td>2306</td>
</tr>
<tr>
<td>504 The textbook was helpful.</td>
<td>1 3 16 31 12</td>
<td>3.9</td>
<td>2.5 3.4 3.8 4.0</td>
<td>1949</td>
</tr>
<tr>
<td>For the following items, please leave blank if it is not applicable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>738 The computer labs helped me understand the course material.</td>
<td>2 1 2 2 1</td>
<td>3.0</td>
<td>1.4 2.8 3.0 3.7</td>
<td>1712</td>
</tr>
<tr>
<td>739 The labs (non-computer) helped me understand the course material.</td>
<td>2 1 1 2 0</td>
<td>2.5</td>
<td>1.3 3.0 3.7 4.2</td>
<td>1747</td>
</tr>
</tbody>
</table>

Number of students responding to questionnaire: 63

Reference Group consists of FACULTY OF Science 100-Level Classes
The reference data for the Universal Items is based on results beginning with Academic Year 2005/06 while other items use all data available.
Information about the contents of this report may be found on the Web at: http://www.ualberta.ca/AICT/TSQS/IDQ_reports.html
Math 120 Lec D1 – Fall Term 2007
Sun, Jie
Course Evaluation Comments

- This class was really good and entertaining.
- The prof. was a great help outside of the classroom. The examples in class were much different than the text.
- There was a bit of a discrepancy from what was learned in class, to the assignments in the text, to the exams and quizzes. More numerical examples in class are needed and the exams/quiz should be more related to the assigned questions or vice versa. I do like the practice quizzes and the material online.
- Great job!
- It’s very great to have sample quizzes/test/exams w/solutions available to study from.
- This specific teacher was great!
- Sometimes she seemed to move too fast. I didn’t always have enough time to copy down the notes and understand them at the same time. She needs to realize that we are not writing at the same speed as her because we don’t know what she is going to be writing down so we have to wait until it is written before writing it down ourselves. So she just moves on too fast sometimes.
- Numerical examples would have been an effective way to help us understand the content. When it is an exam day, just let us write the exam without the hour-long lecture beforehand.
- A math course specifically for arts students is needed, there is an english for engineers, math for arts is only fair. More examples with actual problems are needed theory without examples only confuses.
- Jie Sun is a very gifted teacher and by far the best professor I have encountered this semester. I think the secret to her success is plenty of hard work preparing, grading, and giving feedback, but also she communicates effectively that she desires for every student to succeed. (Also her lectures are creative and rarely uninteresting)
- The professor did a good job of explaining the contents of the course. I really enjoyed her willingness to meet up with students to go over the mid term examination. She could perhaps try focusing on some pronunciation because that made things slightly confusing. (especially M & N) Overall I enjoyed her teaching.
- I thought Jie Sun did a really good job teaching this class. She was really into it. Her excitement over the material really showed + made it way interesting to learn.
- Jie Sun was such a good teacher. I really like her methods of teaching. Shes approachable + a really nice lady. I love her.
- The course moved too fast. Material was explained too quickly.
- One on one midterm reviews were very helpful. Great one on one help as well for course material.
- Very good teacher. I am in my fourth year @ U of A & have never seen a teacher put so much effort into making sure the students understood the material.
Well taught, perhaps review sessions right before quizzes was a little annoying and ridiculous, but otherwise good course, clear presentation of concepts and continual linking new concepts with previous ones.

You were great!

The instructor did an excellent job. She was available for help and tried very hard to help students through the class. Excellent examples in class made understanding difficult material easier.

Amazing prof, best I’ve had. Explained everything simply and clearly

Great professor! Some complicated concepts were very rushed and some classes were overwhelming. Slow down! Very tough ideas in the first place, so more comprehensive explanation required – may help students in the future understand the concepts better – but still, a very good teacher. Thank – You!

The sample quizzes and sample exams were very helpful.

JieSun did a great job at teaching and taught at a steady pace. Always available for help outside of the classroom and after class. The course could have moved faster at the beginning to spend more time on the harder end chapters. Overall, best math course/easiest to understand in U of A.

Difficult to understand at times. Strong effort to provide individual one-on-one help.

I really liked Jie Sun. She took care to teach us in a comprehensive manner, giving us time to understand. I really appreciate her efforts to get to know us as students, as well.

It was very obvious that Jie Sun was very well prepared. She explained this entire course very well and was always available for help on homework and after quizzes and exams. At first, I had a very hard time understanding her English, but after a few classes, I could understand her very well. Overall, a great instructor.

The prof attempted to speak clearly, but did not demonstrate mastery of the English language. Made a good attempt to meet with all students individually to discuss midterm exams.

The understanding quality of the course was excellent, the instructor explained concepts thoroughly and clearly. The instructor was easily accessible outside class time to answer any questions and concerns, along with provide ample practice material for quizzes and exams.

She was an excellent instructor. She actually took the time to meet with individual students to discuss exams and areas in which they could improve. Very helpful!
<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESPONSES FROM YOUR STUDENTS</th>
<th>YOUR MEDIAN</th>
<th>RANKS OF MEDIAN FROM OTHER CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 The goals and objectives of the course were clear.</td>
<td>0 0 1 0 5 4.9</td>
<td>3.4 4.0 4.1 4.3 4.3</td>
<td>1056</td>
</tr>
<tr>
<td>22 In-class time was used effectively.</td>
<td>0 0 0 1 5 4.9</td>
<td>3.2 4.0 4.2 4.5 4.5</td>
<td>1063</td>
</tr>
<tr>
<td>23 I am motivated to learn more about these subject areas.</td>
<td>0 0 0 1 4 4.8</td>
<td>2.8 3.7 4.0 4.2 4.2</td>
<td>1056</td>
</tr>
<tr>
<td>24 I increased my knowledge of the subject areas in this course.</td>
<td>0 0 0 1 0 4.9</td>
<td>3.4 4.1 4.3 4.6 4.6</td>
<td>1056</td>
</tr>
<tr>
<td>25 Overall, the quality of the course content was excellent.</td>
<td>0 0 0 1 5 4.9</td>
<td>3.1 3.9 4.1 4.3 4.3</td>
<td>1056</td>
</tr>
<tr>
<td>674 The instructor spoke clearly.</td>
<td>0 0 0 2 4 4.8</td>
<td>3.1 4.1 4.4 4.7 4.7</td>
<td>1469</td>
</tr>
<tr>
<td>51 The instructor was well prepared.</td>
<td>0 0 0 0 6 5.0</td>
<td>3.2 4.1 4.4 4.7 4.7</td>
<td>1363</td>
</tr>
<tr>
<td>29 The instructor treated the students with respect.</td>
<td>0 0 0 0 6 5.0</td>
<td>3.5 4.3 4.6 4.8 4.8</td>
<td>1363</td>
</tr>
<tr>
<td>26 The instructor provided constructive feedback throughout this course.</td>
<td>0 0 0 0 6 5.0</td>
<td>2.9 3.8 4.1 4.4 4.4</td>
<td>1356</td>
</tr>
<tr>
<td>221 Overall, this instructor was excellent.</td>
<td>0 0 0 0 6 5.0</td>
<td>3.0 4.0 4.3 4.7 4.7</td>
<td>1276</td>
</tr>
<tr>
<td>504 The textbook was helpful.</td>
<td>1 0 0 3 2 4.2</td>
<td>1.2 2.8 3.3 3.8 3.8</td>
<td>360</td>
</tr>
<tr>
<td>738 The computer labs helped me understand the course material.</td>
<td>0 0 0 0 0 ***</td>
<td>2.0 2.8 3.0 3.3 3.3</td>
<td>242</td>
</tr>
<tr>
<td>739 The labs (non-computer) helped me understand the course material.</td>
<td>0 0 0 0 0 ***</td>
<td>1.9 2.9 3.0 3.5 3.5</td>
<td>238</td>
</tr>
</tbody>
</table>

Number of students responding to questionnaire: 6

Reference Group consists of FACULTY OF Science 300-Level Classes

The reference data for the Universal Items is based on results beginning with Academic Year 2005/06 while other items use all data available.

Information about the contents of this report may be found on the Web at: https://www.alct.ualberta.ca/unit/client-services/TSQS/IDQ/IDQ_reports
Jie Sun was an amazing instructor. Well prepared, excellent lectures, and very friendly. Provided plenty of one-on-one feedback, more than any math instructor I've ever had (especially considering those who won't even give and mark assignments!). Her efforts with her students and skill regarding the subject area make her an wonderful instructor!

Jie cares about her students, and is willing to bend over backwards to help them. Available often in her office. Takes time out to go over each students' exam (personally) in order to clear up any misunderstandings. Very good teacher with a pretty smile.

Jie is a great instructor. She is wonderful both in class and outside.

Although her proof explanations were sometimes a little unclear, Jie Sun's notes were extremely well organized, her lectures were easy to follow and she was always friendly and helpful when I spoke with her.

The instructor is excellent and the class is very interesting. I'm absorbed in the beauty of primes. I know mathematics is more about thinking and appreciating. However, I believe more participating of the students would be better.
<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Session</th>
<th>STUD REG.</th>
<th>NO. OF RESP</th>
<th>AVG.</th>
<th>A: Responses (%)</th>
<th>B: Responses (%)</th>
<th>C: Responses (%)</th>
<th>D: Responses (%)</th>
<th>E: Responses (%)</th>
<th>F: Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I find the professor well prepared for class</td>
<td>MAT1339 A (3cr/37hrs/UO)</td>
<td>20099</td>
<td>150</td>
<td>52</td>
<td>4.75</td>
<td>Almost always</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Almost never</td>
</tr>
<tr>
<td>4</td>
<td>I think the professor conveys the subject matter effectively</td>
<td>MAT1339 A (3cr/37hrs/UO)</td>
<td>20099</td>
<td>150</td>
<td>51</td>
<td>3.96</td>
<td>Almost always</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Almost never</td>
</tr>
<tr>
<td>9</td>
<td>I find that the professor as a teacher is</td>
<td>MAT1339 A (3cr/37hrs/UO)</td>
<td>20099</td>
<td>150</td>
<td>51</td>
<td>4.05</td>
<td>Excellent</td>
<td>Good</td>
<td>Acceptable</td>
<td>Poor</td>
<td>Very poor</td>
</tr>
</tbody>
</table>
# Evaluation of Teaching by Means of Student Questionnaire

**Session:** Fall 2009

**Professor:** Sun, Jie

**Faculty/Department:** Faculté des sciences/Fac. of Science

## Academic Activity: MAT139 A

<table>
<thead>
<tr>
<th>No. of Resp.</th>
<th>Student Responses (%)</th>
<th>Average</th>
<th>B: Responses (%)</th>
<th>C: Responses (%)</th>
<th>D: Responses (%)</th>
<th>E: Responses (%)</th>
<th>F: Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I find the professor well prepared for class</td>
<td>150</td>
<td>52</td>
<td>4.75</td>
<td>Almost always: 40 (76%)</td>
<td>Often: 11 (21%)</td>
<td>Sometimes: 1 (1%)</td>
</tr>
<tr>
<td>2</td>
<td>The professor's teaching is stimulating</td>
<td>150</td>
<td>51</td>
<td>3.82</td>
<td>Strongly agree: 10 (18%)</td>
<td>Agree: 23 (45%)</td>
<td>Disagree: 17 (33%)</td>
</tr>
<tr>
<td>3</td>
<td>The course is well organized</td>
<td>150</td>
<td>52</td>
<td>4.40</td>
<td>Strongly agree: 24 (46%)</td>
<td>Agree: 25 (48%)</td>
<td>Disagree: 3 (5%)</td>
</tr>
<tr>
<td>4</td>
<td>I think the professor conveys the subject matter effectively</td>
<td>150</td>
<td>51</td>
<td>3.96</td>
<td>Almost always: 15 (29%)</td>
<td>Often: 21 (41%)</td>
<td>Sometimes: 14 (27%)</td>
</tr>
<tr>
<td>5</td>
<td>The professor was available to address questions outside class hours</td>
<td>150</td>
<td>52</td>
<td>4.52</td>
<td>Strongly agree: 27 (51%)</td>
<td>Agree: 20 (38%)</td>
<td>Disagree: 0 (0%)</td>
</tr>
<tr>
<td>6</td>
<td>The professor's expectations of students for this course are clear</td>
<td>150</td>
<td>51</td>
<td>4.29</td>
<td>Strongly agree: 20 (39%)</td>
<td>Agree: 27 (52%)</td>
<td>Disagree: 3 (5%)</td>
</tr>
<tr>
<td>7</td>
<td>Assignments and/or exams closely reflect what was covered in the course</td>
<td>150</td>
<td>51</td>
<td>4.47</td>
<td>Strongly agree: 28 (54%)</td>
<td>Agree: 19 (37%)</td>
<td>Disagree: 4 (7%)</td>
</tr>
<tr>
<td>8</td>
<td>The professor's feedback on assignments and/or exams is</td>
<td>150</td>
<td>52</td>
<td>3.85</td>
<td>Very useful: 11 (21%)</td>
<td>Useful: 26 (50%)</td>
<td>Not very useful: 7 (13%)</td>
</tr>
<tr>
<td>9</td>
<td>I find that the professor as a teacher is</td>
<td>150</td>
<td>51</td>
<td>4.05</td>
<td>Excellent: 14 (27%)</td>
<td>Good: 27 (52%)</td>
<td>Acceptable: 9 (17%)</td>
</tr>
<tr>
<td>10</td>
<td>I have learned a lot in this course</td>
<td>150</td>
<td>52</td>
<td>4.21</td>
<td>Strongly agree: 18 (34%)</td>
<td>Agree: 27 (51%)</td>
<td>Disagree: 7 (13%)</td>
</tr>
<tr>
<td>11</td>
<td>In comparison with my other courses, the workload for this course is</td>
<td>150</td>
<td>51</td>
<td>3.31</td>
<td>Very heavy: 1 (1%)</td>
<td>Heavier than average: 14 (27%)</td>
<td>Average: 36 (70%)</td>
</tr>
<tr>
<td>12</td>
<td>Overall, I find the course</td>
<td>150</td>
<td>51</td>
<td>3.80</td>
<td>Excellent: 12 (23%)</td>
<td>Good: 22 (43%)</td>
<td>Acceptable: 14 (27%)</td>
</tr>
<tr>
<td>13</td>
<td>I would recommend this course to another student</td>
<td>150</td>
<td>52</td>
<td>3.80</td>
<td>Strongly agree: 12 (23%)</td>
<td>Agree: 22 (42%)</td>
<td>Disagree: 14 (26%)</td>
</tr>
</tbody>
</table>
MAT 1339A – Fall Term 2009

Jie Sun

Course Evaluation Comments

➢ Prof. Jie Sun is very enthusiastic, nice, sympathy with students. She has clear explanations, useful examples, especially sympathy with students’ situations, e.g. extension assignments, helpful. Prof. Jie Sun is an excellent Asian professor I have ever seen (good pronunciation + interpersonal skills).

➢ The course is quite good as it is. Thanks for posting notes online. The website really helps.

➢ The course website is helpful. Calculus is boring.

➢ Concise, straightforward, good methods of teaching subject (vs. previous methods I have seen). Construction noise made it impossible to hear at times. Writing on blackboard was not clear and confusing at times.

➢ Based on what I’ve seen in the exams and assignments we learn a lot of stuff that we’re not even tested on. This makes it hard to study for tests because we aren’t given a clear outline of what to study. You need to take out some irrelevant material. It’s rare if any of us are turning to be mathematicians at this level, so better break down the course so it’s only the basics.

➢ J’ai appris beaucoup des nouvelles choses. Le professeur donne
beaucoup de bon examples (I have learned many new things. The professor gives many good examples).

- Professor demonstrates the high knowledge and easy explanation. The assignments are closely related to course material. In my point, it is Professor Jie who brings the passion for this course.

- The assignments closely related what was on the midterms and exam. Use a better textbook.

- Good consistency. The assignments helped prepare for the tests. Both course and teacher were good.

- The course is very good but I hoped the mark of this course had effect on my average course since students study hard and their mark is not count in average is disappointing.

- Excellent teaching style. Clear instructing and teaching on course materials. Keep back roll noise makers quiet.

- I liked the fact that you are very organized and you post the notes online. I think it would be better if you would have showed us exercises similar to the homework. I found the problems from the homework a lot harder than the ones from the notes and textbook. Also, you spent a lot of unnecessary time showing us the proof. We don’t need that and it is often confusing.

- Thank you Jie. You are an excellent teaching/professor. Calculus is not fun, it’s hard. I know the class is fast pace so we can go through
all the chapters on time before the final exam. Some people couldn’t keep up. I did. Thanks again for all your help!

- The thing I found very useful were the review classes. One thing that could be improved is for the teacher to go step by step when solving a problem and to explain simple theories even if it’s not part of the course. That way the student understands how to achieve the answer.

- The assigned homework questions closely reflect the exams/assignments. Very well organized, great examples. Improvements include more class participation activities.

- The course is very challenging. Use more examples/HW questions, opposed to proofs.

- The professor effectively conveys the subjects content and the methods of teaching are very constructive. At times it is difficult to understand the professor.

- I do like this course. Professor is good and kind enough to discuss matters outside. Course syllabus is not that much heavy.

- Lecture notes are very confusing, most of the time I have to get help with the content from friends because I don’t understand a lot of what she is doing (when writing things out, she skips steps without telling us what should be done).

- Very good teaching and helps to understand all questions in the lecture notes. I really enjoyed this class and the professor. Need to
have more availability in your office hours. Once a week is not enough.

- Professor really prepared well.
- The teaching was good and I have gained a lot. Before taking this course, I always had the impression the course was hard. But I have realized it’s not that bad.
- I find that the professor is not simulating. I had problems understanding the professor.
- The teacher really cares about her students, and is always available to help. This course could benefit from an algebra review component in the beginning.
- I liked when the professor posted her notes on the course website + posted the solutions fro assignments and exams promptly. I also liked when she wrote her notes on the blackboard. Thanks for all the extensions!
- I think students should be permitted with a formulasheet on exams.
- The teaching was well prepared and conveyed effectively. The course could be improved by …
- I hate calculus. She was great! No comment.
- I like the personality of the professor. More clearexplanation.
- The course is okay – nothing too exciting. You are definitely one of the nicer professors here, which I appreciate. You want us to succeed
rather than suffer like one of my professors. You were very helpful in the office hours.

- Assignments enable students to boost marks. Two midterms should allow mistakes to be made, not too much pressure. Split midterms apart more. Make the DGD not just homework questions.
- The professor was very encouraging and went out of her way to be available to students. I appreciate her positive attitude, and she tried to get to know all the students needs.
- Professor was very approachable, really went out of her way to make sure everyone succeed. It could be more examples, less proofs.
- I learned a lot. Sometimes hard to understand her pronunciation of some words.
- I like the number of assignments.
- There were no surprises on either of the two midterms. What we covered in class was what was on the tests. The exams also closely reflected the assignments as well. Professor Jie was always available to clarify subject matter outside of class as well. 8:30 DGD Friday mornings is the academic equivalent to cruel and unusual punishment. Other than that, no complaints.
- Goes over material well. Take more time going through things.
- Tests and exams were covered in the class. More DGD classes are needed.
The teacher is very nice and always willing to help us however she can. I can’t read a thing when I sit at the back of the class. Something should really be done about it.

The professor is very helpful when students are having a hard time. It is obvious that she cares about her students and wants to see them succeed, which is an important quality in a great teacher. Her notes are very detailed and her website is very helpful!

As I like mathematics, I liked to learn things that I had never seen before. I think the notions seen in the class are taught too fast. I would like a slower teacher.

I could not understand what she was saying due to her accent in the first term of the course. Now I can usually make out what she is saying.

I like many examples were used to teach the material. It is much easier to understand when I have examples to relate it to. The limits was a bit unclear, more examples would have been helpful.

The course was great and I was very happy with my results! Professor Sun was an exceptional teacher and it really enhanced my learning. All the material was clear and easy to understand. Coming out of high school, math was my weakest subject and now I’d say it’s one of my strongest. One thing that was noticeable in your teaching habits was using the board instead of the overhead like at the beginning. Overall,
wonderful teacher and a wonderful course!

- I like the vectors. The teacher could slow down a bit and make sure everyone understand.

- I like how the professor gave us a good breakdown at the midterms and was always there when we needed help. To be a little more interactive.
<table>
<thead>
<tr>
<th>Session</th>
<th>Student Record</th>
<th>No. of Responses</th>
<th>Average</th>
<th>A Responses (%)</th>
<th>B Responses (%)</th>
<th>C Responses (%)</th>
<th>D Responses (%)</th>
<th>E Responses (%)</th>
<th>F Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MAT1339 B (3cr/37hrs/UO)</td>
<td>20101</td>
<td>71 31</td>
<td>4.93</td>
<td>Almost always</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Almost never</td>
</tr>
<tr>
<td>4</td>
<td>MAT1339 B (3cr/37hrs/UO)</td>
<td>20101</td>
<td>71 31</td>
<td>4.29</td>
<td>Almost always</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Almost never</td>
</tr>
<tr>
<td>9</td>
<td>MAT1339 B (3cr/37hrs/UO)</td>
<td>20101</td>
<td>71 34</td>
<td>4.44</td>
<td>Excellent</td>
<td>Good</td>
<td>Acceptable</td>
<td>Poor</td>
<td>Very poor</td>
</tr>
</tbody>
</table>

Professor: Sun, Jie
Faculty, School, Department: Faculté des sciences/Fac.of Science
Mathématiques/stats/Maths & Stats
### EVALUATION OF TEACHING BY MEANS OF STUDENT QUESTIONNAIRE

**Session:** Winter 2010  
**Professor:** Sun, Jie  
**Faculty/School/Department:** Faculté des sciences/Fac. of Science  
**Mathématiques/stats/Maths & Stats**

<table>
<thead>
<tr>
<th>Academic Activity</th>
<th>STUD REGO.</th>
<th>NO. OF RESP.</th>
<th>AVG.</th>
<th>A RESPONSES (%)</th>
<th>B RESPONSES (%)</th>
<th>C RESPONSES (%)</th>
<th>D RESPONSES (%)</th>
<th>E RESPONSES (%)</th>
<th>F RESPONSES (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I find the professor well prepared for class</td>
<td>7</td>
<td>31</td>
<td>4.99</td>
<td>Almost always</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Almost never</td>
<td></td>
</tr>
<tr>
<td>2 The professor's teaching is stimulating</td>
<td>71</td>
<td>32</td>
<td>4.15</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 The course is well organized</td>
<td>71</td>
<td>32</td>
<td>4.59</td>
<td>Strongly agree</td>
<td>agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 I think the professor conveys the subject matter effectively</td>
<td>71</td>
<td>31</td>
<td>4.29</td>
<td>Almost always</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Almost never</td>
<td></td>
</tr>
<tr>
<td>5 The professor was available to address questions outside class hours</td>
<td>71</td>
<td>33</td>
<td>4.66</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td>Question not applicable</td>
<td></td>
</tr>
<tr>
<td>6 The professor's expectations of students for this course are clear</td>
<td>71</td>
<td>33</td>
<td>4.45</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Assignments and exams closely reflect what was covered in the course</td>
<td>71</td>
<td>33</td>
<td>4.63</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td>Question not applicable</td>
<td></td>
</tr>
<tr>
<td>8 The professor's feedback on assignments and exams is</td>
<td>71</td>
<td>34</td>
<td>4.42</td>
<td>Very useful</td>
<td>Useful</td>
<td>Not very useful</td>
<td>Useless</td>
<td>No feedback provided</td>
<td>Question not applicable</td>
</tr>
<tr>
<td>9 I find that the professor as a teacher is</td>
<td>71</td>
<td>34</td>
<td>4.44</td>
<td>Excellent</td>
<td>Good</td>
<td>Acceptable</td>
<td>Poor</td>
<td>Very poor</td>
<td></td>
</tr>
<tr>
<td>10 I have learned a lot in this course</td>
<td>71</td>
<td>32</td>
<td>4.18</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 In comparison with my other courses, the workload for this course is</td>
<td>71</td>
<td>32</td>
<td>3.31</td>
<td>Very heavy</td>
<td>Heavier than average</td>
<td>Average</td>
<td>Lighter than average</td>
<td>Very light</td>
<td></td>
</tr>
<tr>
<td>12 Overall, I find the course</td>
<td>71</td>
<td>33</td>
<td>4.00</td>
<td>Excellent</td>
<td>Good</td>
<td>Acceptable</td>
<td>Poor</td>
<td>Very Poor</td>
<td></td>
</tr>
<tr>
<td>13 I would recommend this course to another student</td>
<td>71</td>
<td>31</td>
<td>4.12</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SESSION - 1: WINTER, 5: SPRING/SUMMER, 9: FALL**
The course was easy to follow, and each class reviewed the previous lesson to ensure understanding and address any questions. More practice questions during the lectures would make the content a little easier to understand.

The course is not easy and with a full course load, it is hard to focus on just one course more than the others. Needs to do more practice problems and slow down on lectures because sometimes we go through them too fast and I end up learning nothing.

Allowing students to be present when one of the midterms was graded was very helpful. The professor made sure she got to know all the students in her class. Made the learning environment more comfortable and relaxed, very rare for a university.

Examples given in lectures are often too simple and don't always help to prepare for the more complicated questions on assignments and midterms. Would be more beneficial to make lecture examples more complicated. I like that the notes are online, they help understand more. The teachers was always available for help.

I like the group discussion in class. More examples solved in class and detailed explanations can improve the course.

The professor is very nice and always makes herself very available outside of classroom. Her accent makes it hard to understand her sometimes.
I like examples, presentation, assignments and updated notes. The course is great the way it is. More examples and notes would be good.

It is a good course. It helps acquire skills for the future.

The teacher was always available and gave great feedback which really helps for future learning. The course was very well structured, everything was clearly presented. I find that nothing should be changed. I liked the teacher's enthusiasm. It's already perfect.

It was well organized. The professor made an effort to ensure us understand the course content and having the assignments was helpful.

I liked the way teacher interacts with students and actually asks them how they want to learn. She is very open to suggestions. She actually encourages students to come up with new ideas and making learning fun. I think she is awesome as a teacher and should keep doing what she is. Very happy with her teaching style.

The assignments help with the exams. More examples and practice would improve the class.

Useful content taught well. The teacher was very kind and helpful. Always ready to teach. Covered content and practice problems are enough to prepare us for the tests. She was great.

I like the slides posted online and the in depth explaining in class. Nothing really could be changed.

I liked the "red fish" system that Dr. Sun used. It helped me isolate important concepts. More examples of problems and more complex examples so we can see what kind of questions would appear on an exam.
rather than the simplest example. This would help me be prepared for exams and apply concepts better.

- Class can be improved by making class more entertaining rather than just staring at number.

- I like that she is passionate about math and is very knowledgeable. Sometimes comes off unclear and explanation gets lost.

- It was straight forward, most of the things were spoon fed or told which was essentially okay. The course should be made a little more difficult.

- I liked the feedback that the teacher gave. Prefer more exercise to practice.
The purpose of this exercise is to collect constructive feedback for the purposes of instructional analysis and improvement. This questionnaire is purely informational. Your participation is voluntary and will remain anonymous.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The professor makes clear the purposes of each class session.</td>
<td>20</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. The professor makes clear the distinction between major and minor topics.</td>
<td>21</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. The professor maintains an atmosphere which actively encourages learning.</td>
<td>17</td>
<td>15</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. The professor responds to questions raised by students.</td>
<td>25</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. The professor inspires excitement or interest in the content of the course.</td>
<td>11</td>
<td>22</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6. The professor makes clear precisely how my performance will be evaluated.</td>
<td>17</td>
<td>15</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7. The problems worked out in class help me to work out assignment questions.</td>
<td>24</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>8. The assignments are interesting and challenging.</td>
<td>12</td>
<td>21</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9. I generally understood the material presented in this course.</td>
<td>8</td>
<td>22</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10. I was able to get individual help when I needed it.</td>
<td>17</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

11. What aspects of the class have helped your learning the most or do you like the best?

✓ Examples
✓ Online notes
✓ Small class size

12. What suggestions can you offer that would make this course a better learning experience?

✓ More examples
✓ More explanation
✓ More practice questions
✓ Slow down
✓ Volume of voice
Additional comments freely given by students

Math 324 B1 Summer 09

- Thank you very much for your patient teaching and considerate care for my study in Math 324 this summer. I learn a lot from you and from this course. I know how to write a math project now and I got acquaintance with the software LaTex, on and on. Wish you being happy every day!

- I thoroughly enjoyed your class, I learned a lot (I think).

Math 1339 A Fall 09

- Thank you for taking the time to talk with me today and discuss the course. I’m hopeful that my continued efforts will yield me the result I’m hoping to achieve and I know Math is about constant practice... Just got to keep at it! :) I’m glad you’ve opened your door to me so that I may work with you to better understand the concepts.

- Thank you very much Dr. Sun for your help and encouragement today in the meeting. Yes, this is very much like my third year of high school and I still made it in the end. The difference being, this time I have a prof. who is saying I can achieve the mark I need in contrast to my prof. in high school who was saying I couldn’t achieve the mark. Thank you again.

- Your classes have been great, and you are a very nice professor (need I say amazing at calculus). I just wanted to make sure I give my thanks to your work done, it was a pleasure learning from you.

- It was pleasure to be the student at yours class. All your explanation was clear and understandable. Wishing you Merry Christmas and Happy New Year!!!!

- I wish you and yours a Merry Christmas and a Happy New Year! Thank you for teaching a great class - the best. The workload was trying at times but being in Telfer is worth it.

- I just wanted to make sure I let you know that I really enjoyed your teaching style this semester, and I did learn a lot. Thank you.

- In terms of feedback, I have the following things to say:
  
  - You’re multi-faceted approach in teaching the material allowed me to understand the subject matter, as learning from the proof, from examples, from theory, and from discussion ensured that I looked at a problem from every angle. This was a great thing for me, and you should continue it going forward!
  
  - You’re specific use of different colors to highlight various topics was great. It helped me follow the key-points, and changes in a formula.
  
  - Posting the notes before class as a preview was great. It helped me understand what you were going to cover in class, and let me read the appropriate section of the text-book in advance. I know that teaching the class doesn’t always follow the guideline of the text, and so knowing what you were going to discuss ensured that I spent the appropriate time on the right topics.
• Thank you so much for your help and guidance. Have a great holiday.

• I really admire you ’cause you are an amazing teacher I have ever met. You are enthusiastic, well-prepared before classes, and really caring to students. I really enjoy this course because it provides me with the solid background.

• Your class is extremely well-organized and well-prepared. I and some friends that took your Mat1339 last semester always talk about your kind. Compared to my Math now, we have to admit that you explained everything so clearly and simply, it is easy to understand, do not have any confusion. Thanks to your lecture notes, I still keep them and use them like my “mystery hints” to tackle this Math class every single problem. Thank you so much.

• It’s been a long time. How is your math lecture going? I actually had a nice time when I did your course last session. Just to wish you a good week ahead (I doubt if you can still remember me).

    Mat 1339 B Winter 10

• Thank you so much! I appreciate your attention to your students!

• Thank you, your lectures are so concise that it is making this course simpler than I expected, just as you predicted!

• Thanks again for all of your help, I really appreciate it.
Contents:

- letters of support from students for the 2008 Zita and John Rosen Teaching Award at the University of Alberta
Ms. Jie Sun  
Mathematical & Statistical Sciences  
686 CAB  
Campus Mail

February 27, 2008

Dear Ms. Jie Sun,

Each year, the Graduate Students' Association presents awards to graduate students and those who support them. At our annual Awards Night, graduate students and the outstanding work they do are honoured.

It is my pleasure to inform you that you are one of this year's winners of the Zita and John Rosen Teaching Award, which you were nominated for by Mr. James D. Lewis.

The award will be presented at the GSA Awards Night on March 13, 2008 in the TELUS Centre on campus. An invitation for this event, to which you can bring two guests, is included. We hope that you will join us on this night to receive your award.

On behalf of the GSA, I would like to congratulate you for winning this award and for your contributions to the graduate student community at the University of Alberta.

Sincerely,

[Signature]

Julianna (Julie) Charchun  
Graduate Students' Association President  
2007-2008
19th February, 2008.

To Whom It May Concern:

Re: Instructor Jie Sun

I had the honour of being Ms. Jie Sun’s student in Math 120: Basic Linear Algebra, in the fall of 2007. The reason I was taking Math 120 was to explore the field of Linear Algebra and to get a feeling of its vastness.

From the first day of class, Ms. Sun’s dedication towards teaching and towards us, the students, was noticeable. I remember when she asked us to complete a little background survey which included questions such as what was our perception of the field of mathematics, or which math teacher, if any, had inspired us. If I were to take that survey again I would undoubtedly answer Ms. Sun as the math instructor that has inspired me.

In my view, Ms. Sun went out of her way to search for educational resources to share with us in the class. For example, she shared teaching and learning strategies with the class that she had learnt at a conference she had attended. This was the first time in my young academic career that I had seen a teacher incorporating what she has learnt, in terms of learning strategies, into a lesson plan for the students.

Moreover, Ms. Sun has a unique way of explaining core concepts. She starts explaining a concept from the lowest level, which is of pure imagination, building steadily on basic principles up to the level where we can master the concepts independently. Because of her impeccable organization and flow of information it was easy to organize our notes and make sense out of them. As a result, the whole learning process was made conducive and extremely effective.

In conclusion, I strongly recommend Mr. Sun for the teaching award not only for her hard work and dedication in teaching her students but also for the inspiration to always strive for excellence. As for myself, I shall always have the highest regard for Ms. Sun.

Thank you,
Yours truly,
To Whom It May Concern:

My name is Raymond Ly and I am a student in my second year of university. I was enrolled in math 120 in the winter term and had Jie Sun as my instructor. Overall I found her to be a very effective instructor who found new and creative methods to teach, paid close attention to student problems, and took her role as an instructor seriously.

Jie Sun was definitely innovative in her teaching style. On the first day of class she showed us a PowerPoint presentation created by a Nobel laureate that pinpointed the difference between people who have an amateur approach to physics versus those that have an expert approach to get us on the right path of thinking for mathematics. She would often show us interesting websites with information that related to what we were learning in class and at the end of the semester gave out handouts about the mathematics of ancient art in order to make mathematics more interesting. Jie Sun was also very original in the way she presented the material itself. She often gave us a short review of the previous days lecture before starting a new one so that students wouldn’t feel as lost. She would also give an outline of the most important concepts so students always knew what to focus on. She also not only presented us with the information we needed to know, she always made sure to tell us about the methods we should use to think about the information which is very important in mathematics.

Jie Sun also worked hard to have a strong rapport with her students. After every quiz or midterm, she would always point out common student mistakes and explain to students why the answer is wrong. She would always allow time for students to ask questions about tests or about the material in general and would often ask students for answers or have them write on the board to test how much they know. This gave her a good feel for what concepts were causing trouble for students. She was very considerate of student needs and definitely made herself accessible. She maintained office hours and I was always able to get a quick answer from her via email. A very large step she took in establishing a good teacher student relation was having a ten minute talk with every student after the midterm was graded to point out where students were having trouble. This was the first time I saw a teacher try to talk to each student individually in any of my university classes and it was obviously very helpful in pinpointing the unique problem of every student. Jie Sun treated the class with kindness and respect and got the same response from her students.

Overall, Jie Sun showed that she is very dedicated to teaching and puts the education of her students as a priority. It was clear that she put lots of effort into making sure students understood the information and kept up with the material. She implemented quizzes throughout the year to force students to study the material and to let students know where they were making errors. She set up a website that included lectures notes, outlines about important concepts, practice questions and solutions, practice exams, and a links to math related websites. She showed up to lectures very prepared and worked hard to make it clear to students what material they needed to know, what questions they should be practicing and what sections of the book they should be reading. Her dedication was strongly conveyed in her willingness to give each student special attention to tackle individual problems. These qualities made her an excellent instructor.

Sincerely,
February 23, 2008
To Whom It May Concern:

I have had the distinct pleasure of having Professor Jie Sun as my Linear Algebra instructor last term and am writing to give my highest possible recommendation for her. As a first year fresh undergraduate student who was full of many doubts and wonders, I am delighted to have Prof. Jie as one of my instructors, who with her approachable, helpful and friendly character has inspired me to move along with Linear Algebra as well as other courses with confidence and certainty. Her enthusiasm in teaching the subject has strongly influenced me and has left a strong impact on the way I tackle with other subjects too.

The first consultation with her was delighting and I did not feel stupid in asking questions which kept me going to her whenever I have doubts. She was never tired of answering my questions with details and had always made used of different examples or analogies to make sure that I absolutely mastered the concepts. Her replies through emails were fast and detailed too. She made me feel that she was just a friend of mine who was discussing math problems with me and was willing to solve challenging questions together. She never regards herself as of any rank higher than her students and she never underestimated any student’s math capability. She understood almost all the students’ strengths and weaknesses and was able to give constructive responses to us after assignments and exams which was very much appreciated as they were good encouragements.

I was quite impressed by her motivation and keenness. She has almost all the positive attitudes that actually motivated me to work harder on tough questions and made my math learning enjoyable rather than stressed. She encouraged students to consult her and as though as she was taking this burdening stuff as a pleasure which I think she did. She has sowed seeds of interest to do linear algebra, to challenge it, rather than have-to-do problems in this exam-orientated study life. She has deepened my interest in math which I took as a great asset for my further study in physics.

Prof. Jie has exhibited great dedication and enthusiasm to her role as a math professor. She was determined to spread her interest, knowledge and zeal in math to people around her and she had done it. Hence, together with friends of the same class, I will always hold her in the highest esteem.

Respectfully submitted,

Zhe Wang
780-993-7633
zw4@ualberta.ca
End of Supporting Documentation

Jie Sun

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jiesun@math.berkeley.edu