2014

MATH 115-01 Topics in Applied Mathematics

David Berry

Follow this and additional works at: http://www.exhibit.xavier.edu/mathematics_syllabi_spring_2014

Recommended Citation
http://www.exhibit.xavier.edu/mathematics_syllabi_spring_2014/2

This Restricted-Access Syllabus is brought to you for free and open access by the Mathematics Syllabi 2014 at Exhibit. It has been accepted for inclusion in Mathematics Syllabi Spring 2014 by an authorized administrator of Exhibit. For more information, please contact exhibit@xavier.edu.
Purpose:
This course introduces some very interesting real life applications of mathematics. For the most part, only basic mathematical skills are used, but the concepts require considerable thought. The concepts will be learned by doing simplified real life problems.

Instructor:
David D. Berry, Ph.D.
Mathematics and Computer Science
129 Hinkle Hall
745-3462 (XU)
513-202-1106 (Home: 10:00 am - 10:00 pm);
513-708-2476 cell
berry@xavier.edu
Text cell 24/7

Office Hours:
MWF 11:00 am – 12:00 pm
01:30 pm – 02:50 pm
TR 01:30 pm – 02:20 pm

By capture, after class, and by appointment

Prerequisites:
Don't leave home without them! Arithmetic, a little algebra, a little geometry, some basic calculator skills, and ability to understand concepts

Grading Scale:
90 – 100 A 79.5 – 79.999 B - 67.5 – 69.499 D+
89.5 – 89.999 A - 77.5 – 79.499 C+ 60 – 67.499 D
87.5 – 89.499 B+ 70 – 77.499 C Below 59 F
80 – 87.499 B 69.5 – 69.999 C-

Attendance:
Not taken, but recommended. You are responsible for any work given out or assigned when you are not in class. You should get the assignment before the next class if possible. You are responsible for keeping your homework journal up-to-date.

Missed Work:
Late homework journals will lose as much as two letter grade if accepted. Missed exams will be made up only if you have a satisfactory reason and you contact me promptly. Any makeup may be longer/harder or use some ad hoc method. Makeup exams may be given during final exam week rather than during the semester.
(Promptly means ASAP; talk to me – not a message)

Your Work:
All work should be your own. Copying or in some other way using the work of another will result in a zero for all involved. You are not to copy my answer sheets. Failure of course and remarks on your transcript are also possible. You are to abide by Xavier’s Honesty Policy.

Text:
Excursions in Modern Mathematics by Tannenbaum, 7th edition.
Selected parts of Chapters 1, 2, 3, 4, 5, 6, 7, 8, 9, and 11 plus supplements.

Technology:
A calculator will be helpful. Most of the work will only involve simple arithmetic (add, subtract, multiply, divide, percentages, and square roots). The TI-83 plus or better is required in most mathematics courses, but is not necessary for this course. A simple calculator should be fine.

Homework:
Always read the book, study the examples, and do the assigned problems. Keep homework journals updated. Homework journals will be collected and graded on the day of the exam.

(next page)
PROBLEMS: Two types of problems – those in the book and on homework sheets.

In the book are problems at the end of each chapter. These will not be assigned, but they are good practice. Doing these problems will help you increase your understanding of the chapter. These will not be in the homework journal.

Some homework problems will be given out during class or posted on Canvas and answers will be given out in a later class or posted on Canvas. These homework’s, corrections, and solutions will be in the homework journal. See the page on homework journals for more information. Extra material, study sheets, … will also be given out or posted on Canvas. These supplementary items will not be included in the journal.

WRITING: A number of writing assignments will be given. These will be typed, in paragraph form, and written with proper grammar. The grades on all these assignments will most likely be scaled up to 50 points, which is half a test grade. Due to lack of time, this may be partially implemented.

CANVAS: There is a tremendous amount of material on Canvas where this course was taught as an online course. You may use this material as desired unless some parts of it are specific assigned. In other words, this extra material is optional.

TESTING: Five exams including the final. Each chapter will be covered in about three class meetings. Selected parts of chapters 9 and 11 will be covered. There will be an exam about every 8th class meeting. Some exams may take two days.

<table>
<thead>
<tr>
<th>Chapters</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2*</td>
<td>100</td>
</tr>
<tr>
<td>3, 4*</td>
<td>100</td>
</tr>
<tr>
<td>5, 7*</td>
<td>100</td>
</tr>
<tr>
<td>6, 8*</td>
<td>100</td>
</tr>
<tr>
<td>9, 11, and extras*</td>
<td>100</td>
</tr>
</tbody>
</table>

* May include supplementary material too.

GRADING: Points for tests, journal material, and writing will be adjusted if classes are cancelled or there are other reasons for an adjustments. Your final grade will be a weighted average of your tests, the journal grades (scaled to 50*), and the writing score (scaled to 50* or less). I use number grades until I assign a letter grade at the end of the course. The grading scale given above determines the letter grade. Borderline grades are determined by journal grades, writing grades, your attendance, and trends. If you miss class, don’t hand in assignments, …, it is unlikely that I will give the higher grade in a borderline situation.

*The 100 and 50 points scaled values could be different, but the values shown are most likely.
Meeting Days:

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>XH</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31 (T)</td>
</tr>
<tr>
<td>Feb</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>06</td>
<td>07</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Mar</td>
<td>XH</td>
<td>XH</td>
<td>XH</td>
<td>XH</td>
<td>XH</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>April</td>
<td>31</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
</tr>
<tr>
<td></td>
<td>07</td>
<td>08</td>
<td>09</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>XH</td>
<td>XH</td>
</tr>
<tr>
<td></td>
<td>XH</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>May</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>01</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
<td>09 (F; 8-9:50)</td>
</tr>
</tbody>
</table>

XH – Xavier Holiday (T) - Test
SD – Study Day (F) - Final

Note that every 8th meeting is a test. The first test is on January 31.

Don’t make plane reservations and so forth for dates before the final.

(Errors, typos, and adjustments in syllabus subject to correction)

COURSE SLO’s

- Learn some interesting applications of Mathematics
- Know some shortcomings of Mathematics or its applications
- Find Mathematics in everyday life where it was not expect
- Recognize that Mathematics is more than just numbers
- Learn by solving simple examples of more complex problems
- Discover that non mathematicians also do mathematics
- Learn a few useful everyday applications
- Know the names and discoveries of some famous mathematicians
- Discover the relationships between some important problems that appear to be unrelated
- Understand in more detail some everyday applications of Mathematics