Course Information
Math 3360–001 [CRN 27256]
Spring 2015

January 13, 2015

Instructor: Prof. Lance D. Drager. Office: Math 236. Office Phone: 742–2580, Ext. 242. If you let the office phone ring long enough, you’ll get me or a voice mail system you can leave a message on. My e-mail address is lance.drager@ttu.edu.

Course materials will sometimes be posted on my web page, which is http://www.math.ttu.edu/~drager.

Office Hours: M–F 2:00–4:00. You can come by outside of formal office hours; I’ll usually have time to talk to you. Please feel free to come by if you need help.

Class Forum: We will be using the Piazza system for a class Forum and for announcements. This site provides a way for us to exchange messages, including putting mathematical formulas in the messages. I highly encourage students to post on this forum to discuss mathematical concepts and problems. If a message is not of general interest, you can send it to me as a private message. I will check in with the site every business day.

I will enroll students on the opening class list in Piazza. If you don’t get an email message saying you are signed up, you can sign up on the site.

Our course page is at https://piazza.com/ttu/spring2015/math3360/home

Other Sources of Help: The Mathematics Department Office has a list of people who offer tutoring for pay. Forming informal study groups with other students can be very helpful.

Text: The text is Aigli Papantonopoulou, Algebra: Pure and Applied, Prentice Hall, 2002. We’ll cover roughly, 1.1–1.4, 2.1–2.5, 3.1–3.4, 4.1–4.7, 6.1–6.3, and some material from Chapters 7 and 8, possibly some from 14.

Learning Outcomes: This course is intended to be the introduction to abstract mathematics, with proofs. It is also a writing intensive course.

Students learn how to think and reason abstractly in the context of algebraic structures, and learn how to write correct and clear mathematical arguments in this context. Concepts to be mastered by the students include but are not limited to the following:
Assessment of Learning Outcomes: The assessment of student’s mastery of the skills and concepts as specified in the expected learning outcomes will occur, with appropriate course grades assigned, as follows:

1. 2 in-class exams.
2. 1 Takehome exam.
3. The final exam.
5. Homework and quizzes

The in-class exams, takehome, and the final exam will all be equally weighted. I will drop the lowest of these four scores (which could be the score on the final). If you are satisfied with your grades on the first three exams, you can skip the final and let that be the dropped exam grade. The exams will count for 50% of the grade. Homework and quizzes will count for 35% and Exam Corrections will count for 15%.

For each exam, I will determine a grade range for the A’s, B’s, C’s, D’s and F’s. I will then linearly rescale the grades in the A range to the interval [90, 100], the grades in the B range will be rescaled to the interval [80, 89], and so forth.

At the end of the course, I will average the grades and assign letter grades. The usual cutoffs of 90% for A, 80% for B, 70% for C and 60% for D will certainly be sufficient for the indicated grades, but the cutoffs may go lower, depending on the students’ relative performance and how much knowledge of the material I think that represents.

For example, consider a hypothetical exam with the raw scores as in Table 1. The grade ranges might hypothetically be chosen as indicated. The numerical scores would then be rescaled as indicated in the table, using the formulas on the right and then rounding to the nearest point. The grade rescaling function would be as graphed in Figure 1.

Final Exam: The final exam is on Monday, May 11, from 1:30pm to 4:00pm. It will be in our usual classroom.

Makeups: If you miss an exam you can, at your option, take that as the exam score to be dropped. If you are absent from an exam and convince me that your reason was legitimate, I will give a makeup exam. Late homework will only be accepted with a serious, legitimate excuse.

Class Schedule: The tentative schedule for the class is as follows:

- Groups and group homomorphisms
- Group actions
- Rings and ring homomorphisms
- Polynomials.
Table 1: Grade rescaling

<table>
<thead>
<tr>
<th>Raw (x)</th>
<th>Rescaled (y)</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>96</td>
<td>$y = \frac{100 - 90}{100 - 90} (x - 86) + 90$</td>
</tr>
<tr>
<td>92</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>86</td>
<td>$y = \frac{90 - 80}{86 - 78} (x - 78) + 80$</td>
</tr>
<tr>
<td>82</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>74</td>
<td>$y = \frac{80 - 70}{78 - 70} (x - 70) + 70$</td>
</tr>
<tr>
<td>72</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(cut off at 70)</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>64</td>
<td>$y = \frac{70 - 60}{70 - 55} (x - 55) + 60$</td>
</tr>
<tr>
<td>58</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>451</td>
<td>$y = \frac{60}{55} x$</td>
</tr>
<tr>
<td>40</td>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>


Feb. 9 Exam 1.

Feb. 25–March 6 Chapter 4, Group Actions.

March 9 Exam 2.

March 25–April 1 Chapter 6, Rings.

April 3–April 8 Chapter 7, Ring Homomorphisms.

April 10–April 27 Chapter 8, Rings of Polynomials.

April 13 Exam 3 (Takehome) assigned.

April 29–May 4 Extra topics, review.

May 11 Final Exam.

If these dates are changed, the changes will be discussed in class and will appear on the calendar on my website. However, this document will not be changed.

Class Attendance: To begin with, I will not count attendance towards the grade, although I may pass out a sign up sheet to check the class roll. Many
studies show that class attendance is important in getting a good grade. I will institute an attendance system if it seems necessary!

Remember, you are responsible for all material covered in class and all announcements made in class. If you have to miss a class, you should check with me or a classmate to see what happened.

**Formative Assessment**: Continuous formative assessment of the progress of the course will occur via ongoing communication between the instructor and the students. To this end, all students are encouraged to ask questions during class and to seek the instructor’s help out of class when needed. Other activities in support of student-instructor communication will include: practice exams and quizzes, review of homework, and personal interviews with students doing poorly on work assigned at the beginning of the course.

**Identification**: You should be prepared to show your Texas Tech picture ID at any quiz or exam.

**Accommodations for Disabilities**: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make necessary accommodations. Students should present appropriate verification from Disabled Student Services, Dean of Students Office (AccessTECH). No requirement exists that accommodations be made prior to completion of this approved University process.

**Religious Holy Days**: A student may be absent from class for a religious holy day, as legally defined, and will be allowed to make up any missed examination or assignment within a reasonable time after the absence. See [http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php](http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php)

**Academic Misconduct**: It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own work any work that they have not honestly preformed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.

For more information, and a description of what is considered to be misconduct, see [http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php](http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php)

**Civility in the Classroom**: Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any other form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class.

For more information, see [http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php](http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php)
Figure 1: Graph of the grade rescaling function