Course Syllabus – Spring 2019

COURSE: MATH 331 – Geometry

INSTRUCTOR: Jim Anthony

OFFICE: 158 Hoyt

OFFICE HOURS: Mon 9:20 am – 10:20 am
Wed/Fri Noon – 1 pm

PHONE: 724-946-7285

CONTACT: E-mail: anthonj@westminster.edu

BOOK: Roads to Geometry, 3rd edition
Author: Wallace

GRADING 300 total points

Homework: Homework will be collected on most Thursdays. Homework is typically due the Friday following when the assignment was made. There may be multiple assignments to be turned in each Friday. At the end of the semester, the homework scores will be used to generate a score out of 100 points.

Mid-Term: There will be a 100-point mid-term exam.
Final: There will be a 100-point final.

Late homework or problem sets will NOT be accepted.
Make-up exams will be possible with permission of the Dean.
Make-up exams may be more difficult than the original exam.

Class participation/contribution and attendance may be used to determine borderline cases.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Min Score</th>
<th>Grade</th>
<th>Min Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93.3</td>
<td>C+</td>
<td>76.6</td>
</tr>
<tr>
<td>A -</td>
<td>90.0</td>
<td>C</td>
<td>70.0</td>
</tr>
<tr>
<td>B+</td>
<td>86.6</td>
<td>D</td>
<td>60.0</td>
</tr>
<tr>
<td>B</td>
<td>83.3</td>
<td>F</td>
<td>0.0</td>
</tr>
<tr>
<td>B -</td>
<td>80.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These cutoffs may be lowered and there may be chances for extra-credit during the course.

EXTRA-CREDIT

There may be optional extra-credit opportunities throughout the semester. Students with poor attendance (2 or more unexcused absences) or observed cell-phone use (or other electronic device) twice during class will not receive any extra-credit in the course.
ATTENDANCE

Attendance is required. Math is difficult to learn at times as the new material builds on the previous material. If you miss a class, it is crucial to learn the material as soon as possible. Please let me know prior to missing a class. If there is an emergency and you need to miss class, please notify me as soon as possible afterwards.

Each unexcused absence will lower your final grade percentage by ONE percent.

Perfect attendance will raise your final grade percentage by TWO percent.

Goals:
- To gain complete familiarity with axiomatic structure of geometry.
- To gain an understanding of the theorems in geometry including their development.
- To gain the ability to apply the theorems to solve problems.
- To gain the ability to do Euclidean constructions with proof.

Course Topics:
- Axiomatic Method
- Finite Geometry
- Neutral Geometry
- Euclidean Geometry
- Constructions
- Non-Euclidean Geometry
- Other topics, if time permits

Course Objectives:
Students should be able to
- describe and apply the axiomatic method
- demonstrate an understanding of the various concepts and terms in geometry
- interpret models created with the axiomatic method
- use axioms to construct models
- apply congruence conditions to solve problems
- prove congruence theorems
- use established axioms and theorems to prove other theorems
- explain the differences and similarities between the various types of geometries
- prove the congruence or similarity of planar figures
- determine (with proof) the area or lengths of planar figures
- perform Eulidean constructions using only a compass and straightedge and prove the validity of the construction

These course objectives will be assessed through examinations, homework, group-work activities, as well as students individually working through problems for the entire class.
**ASSIGNED WORK IS NOT ACCEPTED LATE** unless the delay is due to a verified emergency, crisis, or death, in which case a note from the Dean of Student Affairs will be forthcoming. Absence from class is not a reason for submitting late work.

All information in this outline is subject to change at the discretion of the instructor.

**ACADEMIC INTEGRITY:** Central to the purpose and pursuit of any academic community is academic integrity. All members of the Westminster community, including students, faculty, staff, and administrators, are expected to maintain the highest standards of honesty and integrity, in keeping with the philosophy and mission of the College. Academic dishonesty is a profound violation of this code of behavior.

This academic integrity statement is taken from the Westminster College 2016-2017 Undergraduate Catalog, page 54. It is imperative that you never submit the work of others as though it is your own work nor should you ever allow anyone else to use your work without giving credit to you. The penalty for academic dishonesty in this class is minimally the grade of 0 on the assignment and, except for unusual circumstances, a grade of F for the course. Any event of academic dishonesty is reported to the Dean of the College. Other details of violations and consequences are given in the catalog.

**GROUP WORK:** Group work is a proper and effective way to study and learn if all participants do their full share of the work. It is possible to misunderstand exactly what it means to be responsible for “doing your own work.” You may (and should) discuss problems with other students and reach conclusions together. However, it is a form of academic dishonesty for a student, who has not attended class, read the assignment, or thought about the problem on their own to try to use the ideas developed by a group or claim credit for work to which one has not contributed. It is also dishonest to encourage or allow such practices on the part of others. You must, in all cases, leave the group discussion and write your own solutions for the exercises you submit for grading.

**ACCESSIBILITY STATEMENT:**
Westminster College actively strives for the full inclusion of all our students. Students with disabilities who require access solutions for environmental or curricular barriers should contact Faith Craig, Director of Disability Resources, located in 209 Thompson-Clark Hall. Phone: 724-946-7192 E-mail: craigfa@westminster.edu

**CATALOG DESCRIPTION:**

MTH 331 College Geometry (2 SH). An examination of the axiomatic foundations of non-Euclidean and Euclidean geometry. Prerequisites: C- or better in MTH 241 and in MTH 250.