**Course #**: MATHEMATICS 1319  
**CRN**: 31777  
**Course Title**: Mathematics in the Modern World  
**Credit Hours**: 3  
**Term**: Summer II, 2014  
**Course Meetings & Location**: MTWRF 2:00-4:10 Bell Hall 143  
**Prerequisite Course**: Placement score or MATH 0311  
**Instructor**: Joe Guthrie  
**Contact Info**:  
Office Location: Bell Hall 300  
Telephone: 747-6755  
email: jguthrie@utep.edu  
Fax: 747-6502  
Emergency Contact: 747-5761  
**Office Hours**: Monday, Tuesday, Wednesday, Thursday 1:30-2:00, and by appointment.  
**Textbook**: Burger and Starbird, *The Heart of Mathematics, 3rd Ed* (Required)  
A used copy of the 2nd edition will do nicely. The manipulatives package is good to have, but not required. We will not use the internet access, so there is no need to pay for that. You will need a calculator.

**Course Objectives:**

This course is designed to introduce you to the big picture of what mathematics is, and what it means to do mathematics. In contrast (probably) to your previous experiences with mathematics, this means more than applying rote formulas or watching someone else think. You will be actively engaged in (guided) discovery, retracing for yourself the highlights of some of the major developments in mathematics.

Upon successful completion of the course, you will know and understand the great ideas and recurring themes of mathematics. You will be able to express this understanding in verbal form, and by solving problems. You will be capable of applying, in a variety of settings, mathematical thinking, such as: following assumptions to their logical conclusions; finding and testing patterns; and representing the essential information of an involved situation.

Specific topics will come from the broad areas of numbers, infinity, geometry, and probability. Highlights include (but are not limited to) answering the following questions: Are there infinitely many primes? Can all numbers be written as fractions? Are there different kinds of infinity? What are the most symmetric 3-dimensional shapes we can build with straight lines? How likely are coincidences?

**Course Activities and Assessment:**

Participation (5%):
A large portion of class time will be devoted to discussions and investigations in small groups and with the whole class. Your active engagement with the material is required at all times. You will not be able to get a good participation grade if you are absent too much.

Homework (15%):
 Individual homework will be assigned daily, and collected about 3 times a week. You are allowed to work together on homework (in fact, I encourage you to do so), but the paper you turn in you must write yourself. In order to receive substantial credit for a homework solution, you will need to explain your steps and reasoning, not just the answer.

Homework is due at the beginning of class (2:00 sharp); if you cannot make it to class, arrange to either deliver the homework to me early, or have someone else bring it to class for you. Your lowest homework score will be dropped.

Exams (20% each):
There will be three in-class exams. The dates for these exams and the material to be covered will be announced in class at least three days in advance. Makeup exams will be given only in extraordinary and unavoidable circumstances, and with advance notice.

Final (20%):
The final will be comprehensive (including parts of Ch. 7) and will be 4:00-6:45 on Tuesday, August 5.

Drop policy: The deadline to drop with an automatic W is Friday July 25.
Make-up Policy: Makeup exams will be given only in extraordinary and unavoidable circumstances and with advance notice to me by phone or email.
Attendance Policy: Prompt attendance at all class meetings is expected. If you have problems with the course material, need to be absent for an exam, or have any other circumstances that may affect your performance in the course, contact me by phone or email as soon as possible.
Academic Integrity Policy: You are expected to conform to the UTEP policy on integrity. See http://admin.utep.edu/Default.aspx?PageContentID=2083&tabid=30292.
Disability Statement: If you have or suspect you have a disability and need an accommodation, you should contact the Disabled Student Services Office (DSSO) at 747-5148 or at <dss@utep.edu> or go to Room 106 Union East Building. You are responsible for presenting to me any DSS accommodation letters and instructions.
Military Statement: If you are a military student with the potential of being called to military service or training during the semester, please let me know during the first week of classes and contact me as soon as possible if you do receive such an assignment.
## Homework assignments

1. 1.4: #11

2. 2.1: #4, 6, 12.

3. 2.2: #10 and 2.3: #8, 11.

4. 2.4: #6, 11, 14.

5. 2.6: #12 and 2.7: #9, 10, 18, 22.

6. 3.1: #8, 9 and 3.2: #6, 7.

7. 3.3: #10, 19 and 3.4: #11, 12.

8. 4.1: #13, 15 and 4.3: #8, 9, 15.

9. 4.5: #8, 12 and 7.1: #7, 8

10. 7.2: #7, 14, 21.

11. 7.3: #6, 16, 22, 25, 30.

12. 7.4: #6, 19, 23.