

## *Course Syllabus*

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### **Course Information**

*(course number, course title, term, any specific section title)*

**MATH 3321, Section 501, Spring 2007**

### **Professor Contact Information**

*(Professor's name, phone number, email, office location, office hours, other information)*

**Math 3321**

Dr. Titu Andreescu

**Overview**

Office: FN 3.308G Tel. 972-883-2437

e-mail: titu.andreescu@utdallas.edu

Office hours: MW 7:00pm-8:15pm

R 4:00pm - 5:15 pm and by appt.

### **Course Description**

The course will be organized around four main themes:

1. Visualization, Shapes, brief introduction to Spherical Geometry, review of basic Euclidean Geometry: GC Ch. 1
2. Advanced topics in Euclidean Geometry and applications: selected sections GC Chap. 2,4
3. Topics in Geometric Transformations and applications: Web Sites, handout, and selected sections from GC
4. Geometry as a Deductive System and non-Euclidean Geometries [especially Spherical Geometry]: Handout and websites

You are expected to come to class prepared and to participate actively. I suggest you read the text before class. It is a waste of time to simply listen and take notes – you must be **thinking** throughout each class.

Each **Monday** [beginning Jan. 22], you will be asked to respond to a Question of the Week [sometimes] and to the following questions regarding this class:

1. What was the most important thing you learned during the last week?
2. What was the most confusing aspect of the work during the last week?
3. State any questions you have about the ideas and concepts in the readings or class discussions of the last week.

These submissions will be part of your participation grade. You will earn full credit by submitting a thoughtful response each week. [You may miss once in awhile if you have no real comments and there is no Question of the Week] You may submit your report via e-mail - preferably to my home email address.

### **Student Learning Objectives/Outcomes**

The primary purpose of this course is to empower the student with a strong experience in *mathematical thinking*. Students will sharpen their critical thinking skills, learn to justify theorems using various formal and informal methods, make meaningful conjectures, and improve their visualization and problem-solving abilities. Some specific objectives: The student will

- understand selected concepts in Euclidean geometry including transformations
- understand selected basic concepts in some non-Euclidean geometries.
- understand the importance of deductive systems of geometry and the subsequent development of the theorems.
- be able to justify theorems in geometry using appropriate mathematical rigor involving synthetic methods, coordinate methods, trigonometric methods, and transformational methods.
- explore geometric concepts from an intuitive perspective through the use of drawings, physical models, technology, etc. often in a small-group setting.
- solve problems involving geometric concepts.

### **Required Textbooks and Materials**

**Texts etc. :** **Geometry for College Students [GC]** by Martin Isaacs; **Handouts ;**  
**Internet Sites: Symmetries and Their Properties**  
[\[http://illuminations.nctm.org/index\\_o.aspx?id=138;](http://illuminations.nctm.org/index_o.aspx?id=138)  
[http://illuminations.nctm.org/index\\_o.aspx?id=139;](http://illuminations.nctm.org/index_o.aspx?id=139)  
[http://illuminations.nctm.org/index\\_d.aspx?id=474\]](http://illuminations.nctm.org/index_d.aspx?id=474)  
**others TBA**

### **Suggested Course Materials**

#### **Software:**

- **Geometer's Sketchpad:** You may purchase a student version for \$39.95:  
<http://www.keymath.com/store/software/gsp.html>
- **WINGEOM:** <http://math.exeter.edu/rparris/wingeom.html> [for Windows only] freeware

#### **Review of HS Geometry - Resources Books**

- You might consider borrowing/buying a HS Geometry text [Teacher's Edition if possible]
- Self-help books:  
The Geometry Problem Solver :  
[http://www.amazon.com/exec/obidos/ASIN/0878915109/ref=ase\\_starwarsportal/104-7012224-2285541](http://www.amazon.com/exec/obidos/ASIN/0878915109/ref=ase_starwarsportal/104-7012224-2285541)

#### Geometry for Dummies:

[http://www.amazon.com/exec/obidos/tg/detail/-/0764553240/ref=pd\\_bxgy\\_text\\_1/104-7079056-8187139?v=glance&s=books](http://www.amazon.com/exec/obidos/tg/detail/-/0764553240/ref=pd_bxgy_text_1/104-7079056-8187139?v=glance&s=books)  
<http://www.josseybass.com/cda/product/0,,0764553240%7Cdesc%7C2711,00.html>

#### Complete Idiot's Guide to Geometry:

[http://www.amazon.com/exec/obidos/tg/detail/-/1592571832/ref=cm\\_custrec\\_gl\\_rec/103-9452818-7239835?v=glance&s=books](http://www.amazon.com/exec/obidos/tg/detail/-/1592571832/ref=cm_custrec_gl_rec/103-9452818-7239835?v=glance&s=books)

**Web sites.** Try a search with the keywords "geometry" and "help" and/or the specific topic e.g. "isosceles triangles".

### **Ask Dr. Math - Questions and Answers about HS Geometry**

<http://mathforum.com/dr.math/tocs/geometry.high.html>

**Ask Dr. Math - Questions and Answers about College Geometry**

[http://mathforum.org/library/drmath/sets/college\\_geom.html](http://mathforum.org/library/drmath/sets/college_geom.html)

**Ask Dr. Math - Formulas - see especially Geometric Formulas**

<http://mathforum.com/dr.math/faq/faq.formulas.html>

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**Assignments & Academic Calendar, Grading Policy**

*(Topics, Reading Assignments, Due Dates, Exam Dates)*

**Handouts: Each assignment will have several accompanying handouts.**

1. **CLASS EXAMPLES/PROBLEMS:** problems to be considered in class and/or problems that you should be able to do but will not be submitted as written problems
2. **WRITTEN PROBLEMS:** a subset of these will be assigned to written up neatly and submitted.
3. **NOTES:** An overview of the relevant sections of the textbook; additional theorems and proofs; historical information; etc

- Participation, Homework, Monday Reports, Class Participation, etc. : [25%]
- Examinations: [45%] Each exam is partially take-home. Sample questions will be provided.

Tentative dates: Feb. 14; , Mar. 21 , Apr. 11/18

- Comprehensive Final Exam: [30%] April 25 (8:00pm)
- Approximate **test** standards: A 88% B 75% C 60%  
D 50% **over**

**Student Conduct & Discipline**

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

## **Academic Integrity**

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

## **Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

## **Withdrawal from Class**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

## **Student Grievance Procedures**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic

Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

### **Incomplete Grade Policy**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

### **Disability Services**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:  
The University of Texas at Dallas, SU 22  
PO Box 830688  
Richardson, Texas 75083-0688  
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

### **Religious Holy Days**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

### **Off-Campus Instruction and Course Activities**

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address given below. Additional information is available from the office of the school dean. ([http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm))

*These descriptions and timelines are subject to change at the discretion of the Professor.*