Mathematics 2084H – Recreational mathematics

Formerly Mathematics 284H

Trent University, Winter 2009

Instructor

Stefan Bilaniuk (pronounced Стефан Біланюк)
office: GCS 337
Winter hours: Monday & Tuesday 12:00-12:50 and Thursday & Friday 11:00-11:50
. . . or by appointment, or just drop by!
phone: 748-1011 x7474
home phone: 742-7862 – Do *not* call between 10 p.m. and 8 a.m. unless it's an emergency.
e-mail: `sbilaniuk@trentu.ca`
home page: `http://www.trentu.ca/mathematics/sb/`

Prerequisites

A Grade 12 Mathematics credit or equivalent and two full credits in any subject(s) at the 100 level, or permission of the instructor. Not for credit towards a major in Mathematics.

Text

Mathematical Recreations & Essays (Thirteenth Edition), by W.W. Rouse Ball & H.S.M. Coxeter, Dover Publications, New York, ISBN 0-486-25357-0

Meetings

Lectures: Monday 15:00-15:50 in GCS 103, Tuesday ~~11:00-11:50~~ 15:00-15:50 in OCA 206, and Thursday 16:00-16:50 in GCS 103.

Seminar: Thursday 12:00-12:50 in EPC 101.

Marking Scheme

There will be six fortnightly assignments, a project, and a take-home final examination. The assignments will be handed out and collected every other week, the project will be due at the end of the term, and the final examination will be written during the examination period and will be due at its end, on Friday, 24 April. The final mark will be calculated as follows:

Best 5 assignments (5 @ 10% ea.)	50%
Project	25%
Final Examination	25%

Work submitted after the due date will not normally be accepted unless it was late due to circumstances beyond your control. There is no requirement to attend classes, but the consequences of not doing so are your responsibility to manage. Note that MATH 2084H will not make use of "personal response systems" such as clickers.

This scheme may be modified for students in *exceptional* circumstances. Any such modification will require the agreement of both the student and the instructor.

Content

We will cover various recreations which have mathematical content and the mathematics behind them. The topics covered will probably include magic squares, puzzles and games of various sorts, some toys and tricks with mathematical content, and polygonal dissections and tiling problems. Additional topics may be covered in class, depending on time and interest, and on the projects.

Honour & Help

The obligatory statement concerning **academic dishonesty** reads as follows:

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offense and carries penalties varying from failure in an assignment to suspension from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's Academic Dishonesty Policy which is printed in the University Calendar and on the university web site at: `http://www.trentu.ca/deansoffice/policies_dishonesty.php` *.*

For clarity, the following guidelines will apply in MATH 2084H:

Students are permitted and encouraged to ask anyone willing (especially the instructor!) for explanations, hints, and suggestions on the assignments and projects, and to consult whatever sources they wish, with the exceptions that **students may not consult the work returned to other students until they have submitted their own and may not consult anyone who has taken a similar course recently or their work**. However, **all work submitted for credit must be written up entirely by you** (with the exception of group projects)**, giving due credit to all relevant sources of help and information**. The take-home final exam will have more restrictive conditions that will be spelled out on the exam.

In some circumstances you may also be eligible for special help or accommodation. The obligatory statement concerning **access to instruction** reads as follows:

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (Bata Library Suite 109, 705 748-1281, `disabilityservices@trentu.ca`*) as soon as possible.*

Some other sources

Some or all of these may prove useful. Others may be suggested by the instructor, depending on the topics covered.

New Recreations With Magic Squares, W.H. Benson & O. Jacoby
Dover Publications, New York, 1976. (ISBN 0-486-23236-0)
Various articles and books by Martin Gardner on recreational mathematics.
Polyominoes, Solomon W. Golomb
Charles Scribner's Sons, New York, 1965.
Old and New Unsolved Problems in Plane Geometry and Number Theory, V. Klee & S. Wagon
Mathematics Association of America, 1991. (ISBN 0-88385-315-9)
Polyominoes, George E. Martin
Mathematical Association of America, 1991. (ISBN 0-88385-501-1)
Various articles and books by Raymond Smullyan on logical puzzles and paradoxes.

A selection of links to online resources related to recreational mathematics can be found on the course web pages.

MATH 284H Web Pages

`http://www.trentu.ca/mathematics/sb/2084H/`

Consult the web pages for (hopefully) up-to-date information about the course. Note that MATH 2084H will make little, if any, use of myLearningSystem (WebCT).