



# Course Details

## Combinatorial Design Theory

MATH4811A/5609F, Fall 2021

School of Mathematics and Statistics, [Carleton University](#)

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### Instructor:

Prof. Brett Stevens,

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<http://mathstat.math.carleton.ca/~brett/>

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### General Information

#### Textbook:

The course textbook is "Combinatorial designs : constructions and analysis" by Douglas R. Stinson". The [electronic book](#) is available from the Carleton library. The following additional books are available on library reserve

- [Combinatorial designs : constructions and analysis by Douglas R. Stinson](#)
- [Design theory by D.R. Hughes and F.C. Piper](#)
- [Design theory by Zhexian Wan](#)
- [Design theory by C.C. Lindner, C.A. Rodger](#)

- [Combinatorial designs by W.D. Wallis](#)
- [Combinatorics of experimental design by Anne Penfold Street and Deborah J. Street](#)
- [Design theory by Thomas Beth, Dieter Jungnickel, Hanfried Lenz](#)
- [CRC handbook of combinatorial designs edited by Charles J. Colbourn, Jeffrey H. Dinitz](#)

### Prerequisites:

[MATH 3855](#), or permission of the School.

### Classes:

Tuesday 10:05-11:25, Thursday 10:05-11:25.

Room: DT701

**Office hours:** Tuesday 09:00-10:00 or by appointment.

**First class:** Thursday 2021-09-09 **Last class:** Thursday 2021-12-09

**Term mark:** There will be two assignments, a term test and a term project. The tentative schedule is:

Item	Due Date	value
Homework 1	2021-09-23	25%
Homework 2	2021-11-02	25%
Homework 3	2021-11-30	25%
Project	last week of classes	25%

The term project consists of an oral presentation to the class during last week(s) of classes and a short written essay due on 2021-12-09.

Emergencies recognized by the University Regulations with verifiable supporting documentation, will be the only excuses accepted for any missed term work. Students who miss writing a test or submitting an

assignment should bring appropriate documentation and contact the instructor as soon as possible to make arrangements.

Graduate students from Univ. of Ottawa should complete [FGPA's brightspace form](#) to obtain access to brightspace.

### **Plagiarism and Cheating:**

**Plagiarism** is defined in the undergraduate calendar as an instructional offense that occurs when a student uses or passes off "as one's own idea or product, work of another without expressly giving credit". This includes plagiarism involving material lifted from the Internet. Plagiarism is a serious offense. The penalties for students who have been found to have plagiarized are a failed grade at the least severe and suspension, expulsion or notation on transcripts for serious or repeated cases. Plagiarism is just one form of **Cheating**. All forms of cheating are taken very seriously and will be dealt with swiftly and severely.

**Withdrawal:** The last day for withdrawal from the course is **2021-12-12**. Withdrawals before **2021-09-30** get 100% refund, there is **NO** refund after this date.

**Academic Accommodation** Academic accommodations are available for a variety of reasons including pregnancy, religious practice, disabilities and sexual violence. For more information on academic accommodations and requesting them see [Academic Accommodations webpage](#)

**List of Topics Covered:** Construction and existence of combinatorial designs: finite geometry, pairwise balanced designs, balanced incomplete block designs, Steiner triple systems, symmetric designs, PBD closure, latin squares, transversal designs, and applications to information theory.