

UNTITLED

PMATH 453 / PMATH 753

Published

CLASS SCHEDULE

Section	Location	Time	Instructor(s)
PMATH 453 001 [LEC]	PHY 313	Mondays, Wednesdays & Fridays 1:30 p.m. - 2:20 p.m.	Blake Madill bmadill@uwaterloo.ca
PMATH 753 001 [LEC]		Mondays, Wednesdays & Fridays 1:30 p.m. - 2:20 p.m.	

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INSTRUCTOR / TA INFORMATION

Instructor: Blake Madill

E-mail: bmadill@uwaterloo.ca

Office Hours: Monday and Friday, 2:30 - 3:20 in MC 5423.

TAs: Jennifer (j446zhu@uwaterloo.ca)

The TA will be in charge of the grading *and regrading* of your assignments.

COURSE DESCRIPTION

Calendar Description for PMATH 453

Banach and Hilbert spaces, bounded linear maps, Hahn-Banach theorem, open mapping theorem, closed graph theorem, topologies, nets, Hausdorff spaces, Tietze extension theorem, dual spaces, weak topologies, Tychonoff's theorem, Banach-Alaoglu theorem, reflexive spaces.

Prereq: PMATH 450

Calendar Description for PMATH 753

Banach and Hilbert spaces, bounded linear maps, Hahn-Banach theorem, open mapping theorem, closed graph theorem, topologies, nets, Hausdorff spaces, Tietze extension theorem, dual spaces, weak topologies, Tychonoff's theorem, Banach-Alaoglu theorem, reflexive spaces.

Antireq: PMATH 453

LEARNING OUTCOMES

No explicit learning outcomes defined for this course.

TENTATIVE COURSE SCHEDULE

Week #	Week of	Topic	Due:
1	Sept 4*	Hilbert Spaces I	
2	Sept 11	Hilbert Spaces II	Q1
3	Sept 18	Operators on Hilbert Spaces	A1/Q2
4	Sept 25	Banach Spaces I	Q3
5	Oct 2	Banach Spaces II	A2/Q4
	Oct 9	Reading Week	
6	Oct 16	Named Theorems	Q5
7	Oct 23	Locally Convex Spaces	A3/Q6
8	Oct 30	Weak Topologies I	Q7
9	Nov 6	Weak Topologies II	A4/Q8
10	Nov 13	Operator Theory I	Q9
11	Nov 20	Operator Theory II	Q10

12	Nov 27	Additional Topics	A5
13	Dec 4*	Review	

TEXTS / MATERIALS

Title / Name	Notes / Comments	Required
A Course in Functional Analysis (optional)	Author: Conway	No

STUDENT ASSESSMENT

Component	Value
Assignments (x 5)	30%
a) Assignments will be due on Tuesdays at 11:59 PM. b) Your best 4/5 assignments will count towards your final grade. c) You must pass (>50%) at least 4/5 assignments in order to pass the course. Otherwise, your maximum possible final grade will be 47%.	

Component	Value
Quizzes (x 10)	20%
a) Quizzes are 10 minutes long and will occur on Fridays, during the last 10 minutes of class. b) Your best 8/10 quizzes will count towards your final grade. c) The quizzes are open-book. Internet access is not permitted during the quiz.	

Component	Value
Final Exam	50%

You may work in groups on assignments, but you must write up your solutions independently. No resources external to the course (Eg. looking up a solution online) may be used.

ASSIGNMENT SCREENING

No assignment screening will be used in this course.

ADMINISTRATIVE POLICY

UNIVERSITY POLICY

Academic integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check [the Office of Academic Integrity](https://uwaterloo.ca/academic-integrity/) (<https://uwaterloo.ca/academic-integrity/>) for more information.]

Grievance: A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70, Student Petitions and Grievances, Section 4](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) (<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70>) . When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for their actions. [Check [the Office of Academic Integrity](https://uwaterloo.ca/academic-integrity/) (<https://uwaterloo.ca/academic-integrity/>) for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to [Policy 71, Student Discipline](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) (<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71>) . For typical penalties, check [Guidelines for the Assessment of Penalties](https://uwaterloo.ca/secretariat/guidelines/guidelines-assessment-penalties) (<https://uwaterloo.ca/secretariat/guidelines/guidelines-assessment-penalties>) .

Appeals: A decision made or penalty imposed under [Policy 70, Student Petitions and Grievances](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) (<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70>) (other than a petition) or [Policy 71, Student Discipline](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) (<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71>) may be appealed if there is a ground. A student who believes they have a ground for an appeal should refer to [Policy 72, Student Appeals](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72) (<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72>) .

Note for students with disabilities: [AccessAbility Services](https://uwaterloo.ca/accessability-services/) (<https://uwaterloo.ca/accessability-services/>) , located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit alternate assignment.