

Report on the Flexible Pre-Major Review done in 2015

At the 2015 meeting of the BCCUPMS, the five signatories agreed to review the “Flexible Pre-Major”, which is really just a list of courses that are required at institutions with a Mathematics program. The last report on the Flexible Pre-Major was approved in 2011.

This document summarizes the outcome of the 2015 review. Each institution was asked to review the Flexible Pre-Major as it pertains to themselves, and report the findings back. At the 2016 BCCUPMS meeting the signatories recommended no changes to core of the Flexible Pre-Major. The recommendation was adopted.

The Flexible Pre-Major has a fairly well-defined core. Each institution that offers a Major program in Mathematics requires the core courses, with the possible exception of up to two courses (SFU, TRU, UFV, UBC-Vancouver, UVic), and the requirement of some additional courses (except for TWU). University-level requirements like English or additional Science courses are not reflected in this report.

The **core Math and Computer Science courses in the Flexible Pre-Major** are unchanged from 2011.

- Calculus I, II, III
- Linear Algebra
- Discrete Mathematics I
- Ordinary Differential Equations
- Computer Science I, II

The following **changes** are reflected in the listing below.

- There is a new Mathematics program at **KPU**.
- **UVic** has changed their program requirements.
- **TRU** has not changed their requirements, but the entry below corrects a minor omission in the 2011 report.
- The entry for **UBC-Vancouver** has been updated to reflect that Discrete Mathematics I has never been a requirement.

Requirements of the Major programs in Mathematics currently offered are:

- **KPU**. Core, plus Discrete Math II (2410) and Mathematical Statistics (2315).
- **SFU**. Core except Ordinary Differential Equations (see note below), plus Introduction to Analysis (242), Discrete Mathematics II (MACM 201), Statistics I, (270), Computing with Algebra (203), Computing with Calculus (204).

- **TRU.** Core except Ordinary Differential Equations (as students can choose Statistics I instead), plus Introduction to Analysis (2200), Discrete Mathematics II (2700), and one of Statistics I (Stat 2000), Differential Equations I (2240).
- **TWU.** Core only.
- **UBC-Vancouver.** Core, except Discrete Mathematics I, plus Mathematical Proof (220). (See note about Computer Science).
- **UBC-Okanagan.** Core plus Mathematical Proof (220), and Statistics I (230).
- **UFV.** Core except Discrete Mathematics I and Computer Science II, plus Statistics I (270), and Transition to Advanced Mathematics (265).
- **UNBC.** Core, plus Introduction to Complex Analysis (201) and Foundations of Modern Mathematics (224).
- **UVic.** Core except Discrete Mathematics I and Computer Science II, plus Logic and Foundations (122), Abstract Algebra (212), Discrete Mathematics II (222), Introduction to Real Analysis (236), Computer Assisted Mathematics and Physics (248), Statistics 1 (260).

Course equivalencies are listed in the BC transfer guide, www.bctransferguide.ca. The following items are noted.

- Students at **SFU** must take one of Ordinary Differential Equations (310) and Numerical Analysis (MACM 316). These are used to satisfy upper-level requirements in the degree.
- It should be carefully checked whether Computer Science courses transfer to **UBC-Vancouver** – transfer credit is hard to get for UBC CPSC 110 or 210 or MATH 210, which form the computing prerequisites for a B.Sc. in Mathematics at UBC.
- **UVic** Logic and Foundations is an “Introduction to proofs” class. Sometimes Discrete Mathematics I courses receive transfer credit. Additionally, UVic Math 204 is Calculus IV. It includes a substantial amount of Ordinary Differential Equations. Students who transfer with Ordinary Differential Equations instead should experience no difficulties; many Ordinary Differential Equations courses transfer to UVic as 204.

We suggest that the lists of core courses, and current Mathematics programs and requirements be posted separately on the BCCUPMS website, and updated annually.

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