

SFU LON-CAPA EXPERIENCE

JUSTIN GRAY

SFU MATHEMATICS

SUMMARY OF ACTIVITY

- **Homework assignments for almost all lower-division math courses**
- **Support for online courses**
- **Interactive tutorials for Precalculus**
- **Online placement tests**
- **Diagnostic Test for first-semester calculus students**
- **Support for just-in-time teaching**

HOMEWORK ASSIGNMENTS

We have authored a fairly large bank of problems for many of our lower-division courses:

- **Foundations**
- **Precalculus**
- **Calculus I, II, III for physical sciences**
- **Calculus I, II for life sciences**
- **Calculus I for business and social science**
- **Mathematics for elementary teachers**

SUPPORT FOR ONLINE COURSES

SFU Mathematics offers two online courses:

MATH 150: Calculus I with Review

MATH 190: Principles of Mathematics for Elementary Teachers

Both courses make use of LON-CAPA homework.

MATH 190 has been run entirely through LON-CAPA, making use of many of the communication tools as well as essay response problems and drop boxes.



MATH 190-4

Principles of Mathematics for Teachers

Bernice Kastner

Department of Mathematics • Faculty of Science
Centre for Online and Distance Education • Continuing Studies
Simon Fraser University



Welcome to **MATH 190 — Principles of Mathematics for Teachers** offered through the Centre for Online and Distance Education

[Course Outline](#)

[Student Handbook](#)

Before you begin the course work become familiar with all the course components and resources available for this course.

Click on "**Course Contents**" at the top of this window to get to navigate through the table of course contents.

INTERACTIVE TUTORIALS FOR PRECALCULUS

Approximately 30 interactive tutorials for Precalculus

Include:

- **Concept summaries**
- **Geogebra applets**
- **Open-ended (math response) problems**
- **Adaptive hints**

These are published system-wide in

[/res/sfu/tgray/Precalculus](#)

**Domain coordinators can also clone our Precalculus course
(MATH 100)**

ONLINE PLACEMENT TESTS

We run two online placement tests through LON-CAPA:

- 1. Q Placement Test (for students who do not meet the prerequisite to take Quantitative courses)**
- 2. Calculus Readiness Test (for students who do not meet the prerequisite for calculus)**

These are taken mainly by students who want to challenge the course prerequisites and we can accommodate them writing in small groups under supervision in our computer labs.

ONLINE PLACEMENT TESTS

Students can access our practice placement tests through our website (published public) before deciding to challenge our prerequisites

Students sign up for the test through a webform which is used to populate a dummy course. We then use automated enrollment to add the students to the placement test course.

Rather than cloning the placement test course, we simply create new sections for each semester. This makes it easier to aggregate the data and also to verify that a student has only attempted the test once.

 SFU

Math Test Registration

Time remaining to submit this page: 28 minutes.

Fields marked with " * " are required. [Click here for contact information.](#)

Once you have registered for one of the tests below, you will need to schedule a time to write the test by contacting gtest@sfu.ca

First Name: *

Last Name: *

Computing ID: tgray

Which test are you registering for?

Quantative Placement Test
 Calculus Readiness Test

Between which dates would you like to take the test? *

Submit

Cancel

ONLINE PLACEMENT TESTS

All students writing the test in a particular time slot are assigned to the same LON-CAPA group. Access is restricted to that time slot and the IP address is restricted to the work stations in our computer labs.

The test also makes use of the LON-CAPA timer

MATH DIAGNOSTIC TEST & JUST-IN-TIME TEACHING

Since 2007, we have been requiring all first-semester calculus students to write a bubble sheet Math Diagnostic Test (MDT) during the first week of classes. The test is designed to assess their knowledge of the course prerequisites.

The test counts for 5% of the course grade and is pass/fail. However, students that fail it have a straightforward way of making up all of the marks by participating in our Calculus Support Program

MATH DIAGNOSTIC TEST & JUST-IN-TIME TEACHING

Students that fail the MDT sign up for a weekly tutorial group using slots reservations in LON-CAPA.

Students that fail the MDT earn 5% of their course grade through a combination of

- 1. participation in the weekly tutorial group, and**
- 2. completion of weekly LON-CAPA homework assignments that cover prerequisite material**

MATH DIAGNOSTIC TEST & JUST-IN-TIME TEACHING

LON-CAPA is an excellent system for developing placement tests:

- **Problems can be tested in a free-response format and the submission reports can help to generate good distractors for a bubble sheet test**
- **LON-CAPA generates useful statistics (degree of difficulty, degree of discrimination, frequency that certain foils are chosen) that can help to refine the test to create a better diagnostic tool**