

Course Outline for Math 3TP3 Truth and Provability Term 1 Autumn 2014–2015

Course Home Page The course home page is *not* on Avenue to Learn. It can be found at

http://ms.mcmaster.ca/~haskell/math3tp_14-15/ .

Please do not send email from your Avenue account, as I cannot reply to it.

Instructor Dr Deirdre Haskell HH316, ext 27244, haskell@math.mcmaster.ca

Office hours: T 10:30–12:00, Th 10:30-11:30 or by appointment

Course structure There are three lectures per week. You should plan to attend all of these.

There will be a homework assignment due every other Thursday, in class, at the beginning of the class period. Due dates and assignments will be posted on the course webpage.

There will be a reading assignment every week, about the material to be covered that week in class. You are expected to do the reading before the first day of classes for the week (which is always a Tuesday). You should submit a comment on the reading, which might be in the form of a question you would like to have answered in class, by email, by 9am each Tuesday.

Course objective The goal of the course is to understand the statement and proof of the Gödel Incompleteness Theorem. We will discuss the difference between truth in a formal system, and derivability in a formal system. Along the way, we will appreciate both the strength and the limitations of first-order logic and Peano Arithmetic.

Assessment

Participation: 10% Full participation marks will be given for 10/12 reading commentaries and active presence at 30/36 lectures.

Homework: 40% If you cannot complete a homework assignment on time, please discuss it with me (preferably in advance). All of the assignments will include material which is important for understanding the proof of the Incompleteness Theorem.

Final: 50%

MSAF If you are absent from the university for a minor medical reason, lasting fewer than 5 days, you may, once per term, report your absence without documentation, using the McMaster Student Absence Form. Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, report your absence to haskell@math.mcmaster.ca. After submitting an MSAF, contact me to discuss how the work can be made up. Please note that the MSAF may not be used for term work worth 30% or more, nor can it be used for the final examination. The MSAF can be found here: <http://mcmaster.ca/msaf> , and information about its use can be found here: http://academiccalendars.romcmaster.ca/content.php?catoid=7&navoid=559#Requests_for_Relief_for_Missed_Academic_Term_Work .

A final word on cheating All work submitted must be *your own*. At the same time, you are encouraged to discuss problems and general ideas with each other. Mathematics need not be an isolating activity. What you may not do is to copy someone else's work.

Final Policy Notes:

(i) *Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.*

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy located at <http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf>

The following illustrates only three forms of academic dishonesty:

Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.

Improper collaboration in group work.

Copying or using unauthorized aids tests and examinations.

(ii) The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.