
THE MATHEMATICAL IMAGINATION in Fall 2019 (MA1091FB6)

Course Code	MA1091FB6	Professor(s)	Nahid Walji
Prerequisites	None	Office Number	
Class Schedule	TF: 13:45-15:05 in PL-4	Office Hours	to be determined
Credits	4	Email	nwalji@aup.edu
Semester	Fall 2019	Office Tel. Ext.	

Course Description

In *MA1091 The Mathematical Imagination*, we will investigate how adjusting the standard mathematical rules can create new worlds which behave very differently. In particular, we will explore various ways to make infinity attainable, create imaginary numbers, and study the aesthetics of manifolds and hyperbolic functions.

Course Learning Outcomes

General Education

Course Outline

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1. The seven bridges of Koenigsberg
 2. Graph theory
 3. Rethinking addition
 4. Introduction to modular arithmetic
 5. Complex dynamics
 6. Fractals
 7. Discovering infinity (perspectives with different origins) I
 8. Discovering infinity II
 9. Goedel's incompleteness theorem

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10. Differing notions of distance - manifolds
 11. Differing notions of distance - hyperbolic space
 12. Breaking unique factorisation I
 13. Breaking unique factorisation II
 14. Review

(The above is subject to change.)

Textbooks

This course doesn't have any textbook.

Attendance Policy

Students studying at The American University of Paris are expected to attend ALL scheduled classes, and in case of absence, should contact their professors to explain the situation. Student Affairs will recommend that a professor excuse an absence for the following reason only: *Involuntary absences due to illness or personal emergencies, upon presentation of documentary proof of illness or emergency.*

Religious and National Holidays: Due to the large number of nationalities and faiths represented at the University, religious and national holidays (other than those on the academic schedule) will not be excused by Student Affairs.

Academic Affairs will excuse an absence for students' participation in study trips related to their courses.

Lateness to course meetings: If a student arrives at course meetings more than 10 minutes late without documentation for one of the above scenarios, it will be considered an unexcused absence.

Attendance at all exams is mandatory.

IN ALL CASES OF MISSED COURSE MEETINGS, THE RESPONSIBILITY FOR COMMUNICATION WITH THE PROFESSOR, AND FOR ARRANGING TO MAKE UP MISSED WORK, RESTS SOLELY WITH THE STUDENT.

Whether an absence is excused or not is ALWAYS up to the discretion of the professor or the department. Unexcused absences can result in a low or failing participation grade. In the case of excessive absences, it is up to the professor or the department to decide if the student will receive an "F" for the course. An instructor may recommend that a student withdraw, if absences have made it impossible to continue in the course at a satisfactory level.

Students must be mindful of this policy when making their travel arrangements, and especially during the Drop/Add and Exam Periods.

Grading Policy

Homework. There will be regular assignments. Note that homework is not group work - while you may work with other students to understand the material, your answers must be written up individually.

Blackboard site: Students will find all class handouts and other related information on the course *Blackboard* site.

Other

English language proficiency statement:

As an Anglophone university, The American University of Paris is strongly committed to effective English language mastery at the undergraduate level. Most courses require scholarly research and formal written and oral presentations in English, and AUP students are expected to strive to achieve excellence in these domains as part of their course work. To that end, professors include English proficiency among the criteria in student evaluation, often referring students to the university Writing Lab where they may obtain help on specific academic assignments. Proficiency in English is monitored at various points throughout the student's academic career, most notably during the admissions and advising processes, while the student is completing general education requirements, and during the accomplishment of degree program courses and senior theses.