MA6293 Module Title
For Semester 2, AY2019/2020

(This is a Supervision Module – refer to the notes below for more information)

<table>
<thead>
<tr>
<th>Lecturer in charge:</th>
<th>Lucas Kaufmann</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Description:</td>
<td>Random Walks on Matrix Groups</td>
</tr>
<tr>
<td>Eligibility/Prerequisite:</td>
<td>Basic Analysis, Measure Theory and Probability Theory.</td>
</tr>
</tbody>
</table>
| Assessment Mode and Weightage: | 50% class attendance and participation  
                                 20% homework/projects  
                                 30% presentation |
| Expectations of Students: | Learn the basic results of the theory of Random Walks on Matrix Groups (also known as Products of Random Matrices). By the end of the module students will learn that, under general assumptions, products of random matrices acting on projective space admit a canonical stationary distribution. They will also see that the norm of random matrices satisfy analogues of the classical limit theorems for sums of i.i.d. random variables (e.g. law of large numbers, central limit theorem, large deviations theorem, etc). |

IMPORTANT NOTES FOR STUDENTS

1. A Supervision Module is a unique feature in the Department of Mathematics. It is offered only to students pursuing Ph.D./M.Sc. in Mathematics (by Research/Coursework).
2. There must be at least 3 Ph.D./M.Sc. students registered for the module before it starts running.
3. At least 3 Ph.D./M.Sc. students must remain registered for the module throughout the semester. If the enrolment falls below 3 at any time during the semester, the module will be cancelled.
4. Students who are keen to read this module must first seek the lecturer’s approval via email. Those approved to read the module will then register for the module by the normal procedure.
5. On average, the lecturer will meet students for at least 2 hours per week during the semester. The lecturer and students will work out a suitable meeting schedule among themselves, and inform the Department’s timetabling IC to schedule the session in the system, at the soonest possible.
6. There is no exam for this module. Students will be assessed and graded based on their performance in presentations, class participations, homework or projects. Enrolled students will earn a letter grade at the end of the semester, which may be used to count towards their graduation.
7. Students who are not eligible to register for this module may sit in with the lecturer’s permission, but they will not take part in assessments or earn any modular credits.