MA6202 Topics in Algebra and Number Theory II
For Semester 1, AY2018/2019

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

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<th>Lecturer in charge:</th>
<th>Tan Kai Meng</th>
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<td>Course Description:</td>
<td>This is a learning course on modular representation theory of finite groups. We will follow closely Alperin’s ‘Local Representation Theory’, and cover the first four parts, consisting of 16 chapters/sections. Major topics include induced modules, relative projectivity, vertices and sources, Green and Brauer correspondences.</td>
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<td>Eligibility/Prerequisite:</td>
<td>MA5203 Graduate Algebra I. Familiarity with Wedderburn’s structure theorem for semisimple and simple Artinian rings, as well as the Jacobson radical, will be most useful. As such, the other most relevant (but perhaps not essential) prerequisite will be MA5218 Graduate Algebra IIB. Some knowledge of ordinary representation theory of finite groups will be helpful too.</td>
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| Assessment Mode and Weightage: | • Class attendance/participation: 30%
• Class Presentation: 70% |
| Expectations of Students: | Students will take turns to present one chapter/section each week, using their own understanding, instead of verbatim from the textbook. He/she will decide which results to prove in full, and if other students have doubts on the proof of any of the results that has been omitted, he/she will need to provide details on the spot. |

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. There is no pre-scheduled timetable for this module. The lecturer and students will work out a suitable meeting schedule among themselves. On average, the lecturer will meet students for at least 2 hours per week during the semester.
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.