1. Will this new course affect a current program? □ Yes □ No
If "yes", has a Program Revision Form been submitted concurrently? □ Yes □ No

2. Teaching Department: Mathematics & Statistics
3. Administering Faculty/Unit: Science
4. Campus (Downtown, Macdonald, Off Campus, Distance Ed, Other – specify)
   - Downtown
5. Effective Term of Implementation (Ex. Sept. 2004 = 200409)
   - Term: 200509

6. Course Title (Limit 30 Characters) - required for all courses:
   - Computational Algebra
7. Course Number(s)
   - Subject/course number: MATH 335
   - Course(s) Span:
     - □ 1 term
     - □ 2 consecutive terms (D1, D2)
     - □ 2 non-consecutive terms (N1, N2)
     - □ 3 terms (J1, J2, J3)

8. Course Title to Appear in the Calendar (optional)
   - (Limit 59 characters):
   - Note: This can ONLY be an expansion of word(s) abbreviated in the 30 character course title above.
   - Computational Algebra

9. Credit Weight (or CEU's for non-credit CE courses):
   - 3

10. Schedule Type(s):
   (Enter all that apply – see form, STVSCHD in Banner for a complete list.)
   (i.e. Lecture, Labs, Tutorial)
   - Lectures: 3
   - Hours per Week:

   Total Hours per Week: 3
   Total Number of Weeks: 13

11. Projected Enrolment:
   - 25
12. Prerequisite(s) (Courses or Tests)
Specify course number(s) or name(s) of test(s):

MATH 235 and MATH 236

If the student does not have a prerequisite should web registration be blocked?  
☐ Yes  ☐ No

If "Yes" complete A and B:

A. Indicate minimum grade or test score(s) the student must attain in prerequisite course(s) or test(s):

C

B. Can the prerequisite course(s) or test(s) be taken in the same term as this course?  
☐ Yes  ☐ No

13. Corequisite(s) Course Number(s):
Specify course number(s) and title(s):

If the student does not register for the corequisite in the same term should web registration be blocked?  
☐ Yes  ☐ No

14. Consultation Reports Attached
☐ Yes  ☐ N/A

15. Additional Course Charges (must be approved by the Fee Policy Committee)
Description of Fee  
(e.g. screening fee)

Amount

16. Requires Teaching, Physical, or Financial Resources
Not Currently Available (attach explanation)  
☐ Yes  ☐ No

17. Other Information (specify):

18. Course Description
(as it will appear in the Calendar [maximum 50 words]):
(N.B. Faculty of Medicine must append complete course outline)

Computational aspects of modern algebra. Computing in groups: algorithms, algorithmic problems in groups, finitely generated abelian groups, free groups and automata, finitely presented groups. Computing in rings: elementary notions of ring theory, ideals of polynomial rings in several variables, Groebner bases, elements of field theory. Other topics as time permits: elimination theory; applications to cryptography, linear codes, 3-color problem, geometric constructions

19. Supplementary information to appear in the Calendar in addition to the course description.  
Such as: registration restriction(s), prerequisite(s), corequisite(s), equivalent course(s), contact hours, enrolment limitations, language of instruction etc.

Please enter the information as it should appear in the calendar notes.

(Prerequisites: MATH 235 and MATH 236.) (This course is intended primarily for students in the Major Program in Mathematics and the Joint Major Program in Mathematics and Computer Science.)

20. Rationale

We believe that majors students should have the opportunity to develop their knowledge of algebra beyond what they learn in MATH 235. The course is to be given a computational flavour which makes it quite different from the current honours courses in algebra and should also make it attractive to mathematically inclined computer science students, particularly the students in the Joint Major Program in Mathematics and Computer Science. The course would, at least initially, be taught by recently hired colleagues with a strong interest in computational algebra and would be innovative in nature.
<table>
<thead>
<tr>
<th><strong>INFORMATION FOR ADMISSIONS, RECRUITMENT &amp; REGISTRAR'S OFFICE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To be completed by the Faculty</strong></td>
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<tr>
<td>Slot Course: <strong>☐ Yes  ☐ No</strong></td>
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<td>Thesis Component: <strong>☐ Yes  ☐ No</strong></td>
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<td><strong>To be completed by ARR</strong></td>
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<td>CIP Code</td>
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<td><strong>For Continuing Education Use</strong></td>
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<td>CE Admin. Unit :</td>
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<tr>
<td>CE Non-Grant Courses:</td>
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<tr>
<td>Flat Rate: CdnFlat Rate: <strong>☐ Yes  ☐ N/A</strong></td>
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**21. Approvals:**

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<thead>
<tr>
<th><strong>Routing Sequence</strong></th>
<th>Departmental Meeting</th>
<th>Departmental Chair</th>
<th>Other Faculty</th>
<th>Curric/Academic Committee</th>
<th>Faculty</th>
<th>SCTP</th>
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<tbody>
<tr>
<td>Name</td>
<td>G. Schmidt</td>
<td>K. GowriSankaran</td>
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<tr>
<td>Departmental Contact Person (name/phone/email)</td>
<td><a href="mailto:gschmidt@math.mcgill.ca">gschmidt@math.mcgill.ca</a></td>
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