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**IMPORTANT:** All sections in red MUST BE COMPLETED BY YOU.

**IMPORTANT:** All sections in blue CAN INCLUDE INFORMATION DETERMINED BY YOU. THIS INFORMATION IS OPTIONAL.

**Course Subject, Number and Title**MATH 742 – Abstract Algebra II

**Credits**

3

**Course URL**- http://www.math.wisc.edu/~boston/742.html

**Course Designations and Attributes**   
Breadth - Natural Science  
Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
Grad 50% - Counts toward 50% graduate coursework requirement

**Meeting Time and Location**

MWF: 9:55-10:45 in B235 Van Vleck

**Instructional Mode**

Face-to-face

**How Credit Hours are met by the Course**

This class meets for three 50-minute class period each week over the spring semester and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc) for about 2 hours out of classroom for every class period. The syllabus includes additional information about meeting times and expectations for student work.

**INSTRUCTORS AND TEACHING ASSISTANTS**

**Instructor Title and Name**

Professor Nigel Boston

**Office Hours**

Wednesdays 11:00-12:00

Thursdays 1:30-2:30

(in 303 Van Vleck)

**Instructor Email/Preferred Contact**

boston@math.wisc.edu

**OFFICIAL COURSE DESCRIPTION**

**Official Course Description**

Continuation of MATH 741. Usually the study of commutative rings and fields. Ring theoretic topics may include: modules over PIDs, Noetherian rings and the Hilbert basis theorem, the Lasker-Noether theorem, the Krull intersection theorem, integrality and the Hilbert Nullstellensatz. Field theoretic topics may include: algebraic extensions, Galois theory, solvability of polynomials and classical constructability problems.

The first half of the course will focus on commutative algebra. The second half will focus on Galois Theory.

**Requisites**

MATH 741.

**LEARNING OUTCOMES**

At the end of this course students should be able to:

• Possess familiarity with the major notions of commutative algebra and Galois theory

• Be able to solve problems in both areas, in particular as on the Algebra Quals.

**GRADING**

There will be 5 homeworks, worth a total of 20%,and 2 in-class midterms worth 40% each. If you score 90% or higher, you will get an A; if you score 80% or higher, you will at least get a B; if you score 70% or higher, you will at least get a C; if you score 60% or higher, you will at least get a D.

**REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS**

For the first half of the course we will follow Atiyah-MacDonald "Introduction to Commutative Algebra", particularly Chapters 1-3 and 6-7. For the second half of the course we will follow Milne's online notes [Fields and Galois Theory.](https://www.jmilne.org/math/CourseNotes/FTe6.pdf)

## EXAMS, QUIZZES, PAPERS & OTHER MAJOR GRADED WORK

Midterms will be in class on Friday, Mar 15, and TBA. There is no final.

**HOMEWORK & OTHER ASSIGNMENTS**

Homework will be set every other Friday and be due two weeks later (in class- I will not go looking for or accept homeworks in my mailboxes and offices around campus). You are encouraged to discuss the exercises with your classmates but the work you hand in should be your own.

**RULES, RIGHTS & RESPONSIBILITIES**

* To see the Guide’s Rules, Rights and Responsibilities information, refer to <http://guide.wisc.edu/undergraduate/#rulesrightsandresponsibilitiestext>.

**ACADEMIC INTEGRITY**

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison’s community of scholars in which everyone’s academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to [studentconduct.wiscweb.wisc.edu/academic-integrity/](file:///C:\Users\scramer\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\1CCV1TO9\studentconduct.wiscweb.wisc.edu\academic-integrity\).

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

**McBurney Disability Resource Center syllabus statement:** “The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.” <http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>

**DIVERSITY & INCLUSION**

**Institutional statement on diversity:** “Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.” <https://diversity.wisc.edu/>