IMMERSE Algebra Course

Summer 2007

Instructors:	Sandra Spiroff	Zach Teitler
Office:	329 Avery Hall	330 Avery Hall
Email:	spiroffs@seattleu.edu	zteitler@selu.edu
Office phone:	(402) 472-7248	(402) 472-7251

Office hours: TBA and by appointment.

Objectives: The goal of the course is for students to:

1. understand certain topics in commutative ring theory,
2. know how to read a mathematical research paper,
3. be able to graph two and three dimensional polytopes with MAPLE,
4. prepare for graduate school.

Required paper: R. Hübl, *Powers of elements and monomial ideals*, Communications in Algebra, vol. 33, 2005, no. 10, pp. 3771–3781.

Additional texts: The following are suggested reference texts:

1. C. Huneke and I. Swanson, *Integral Closure of Ideals, Rings, and Modules*, London Mathematical Society, **336**, Cambridge University Press, 2006.
2. D. Eisenbud, *Commutative Algebra with a View Toward Algebraic Geometry*, Springer–Verlag, New York, 1995.
3. B. Grünbaum, *Convex Polytopes*, Interscience Publishers, 1967.
4. T. Hungerford, *Algebra*, Springer–Verlag, 1980.
5. W. Vasconcelos, *Computational methods in commutative algebra and algebraic geometry*, Springer, 1998.
6. W. Vasconcelos, *Integral closure: Rees algebras, multiplicities, algorithms*, Springer, 2005.

Students will receive a copy of the first book, Huneke–Swanson. The other books, 2–6, will be on reserve in the math library.

Course description: Four 90-minute lectures and four 90-minute problem sessions per week.

Part 1. Commutative ring theory.

Part 2. Convex polyhedra and monomial ideals.

Part 3. Integral closure.