ABSTRACT ALGEBRA II
Math 501, Spring 2015.

Igor Mineyev. MWF 10:00 am, room 447 Altgeld Hall.
For more information, see www.math.uiuc.edu/~mineyev/class/15s/501/

Please note: This course is a good gateway to another course that I will teach later: Fall 2015, Math 595, Analytic and homological tools in group theory. Consider taking both. It helps.

The tentative syllabus for Abstract Algebra II:

• Modules over non-commutative rings.
• Categories.
• More module theory.
• Semisimple rings.
• Tensor products and multilinear algebra.
• Introduction to homological algebra.
• Cohomology of groups.

Recommended, but not required, textbooks:

• Joseph Rotman. Advanced modern algebra.
• Thomas Hungerford. Algebra.
• David Dummit, Richard Foote. Abstract algebra.
• Kenneth Brown. Cohomology of groups.

\[ F_3 \otimes M \rightarrow F_2 \otimes M \rightarrow F_1 \otimes M \rightarrow F_0 \otimes M \rightarrow 0 \ ? \]
\[ H_3(G, M) \rightarrow H_2(G, M) \rightarrow H_1(G, M) \rightarrow H_0(G, M) \rightarrow 0 ! \]