UCCS Mathematics Colloquium

Thursday, February 18th
12:30 pm – 1:30 pm
(Refreshments at 12:15)
UC Room 307

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Theorems of Cohen and Kaplansky: from commutative to noncommutative algebra

Abstract: Two classical theorems, respectively due to I.S. Cohen and I. Kaplansky, state that all ideals in a commutative ring are finitely generated (resp. principal) if and only if all prime ideals of that ring are finitely generated (resp. principal). After briefly reviewing rings and their ideals, I will present generalizations of these theorems to noncommutative rings, providing sufficient conditions for all right ideals in a ring to be finitely generated or principal. This requires the introduction of a new notion of prime right ideal. If time permits, I will also present a noncommutative generalization of the following theorem of Kaplansky: all ideals of a commutative noetherian ring are principal if and only if all of its maximal ideals are principal.