

SUPPLEMENTARY MATERIALS/REFERENCES:

The instructor might use Enhanced Web Assign or Mind Tap as well as materials found on www.artofmathematics.org.

EVALUATION METHODS:

Evaluation methods may include, but are not limited to, exams, quizzes, graded homework, projects, calculator or computer exercises, and oral presentations.

REQUIRED ASSESSMENT METHODS:

Assessment results from these methods will be used for course-level assessment and, where applicable, for SUNY Schenectady core principles and SUNY General Education Knowledge and Skills areas. This information will be incorporated in program reviews.

Student Learning Outcome	Method(s)
Construct truth tables	Examination or assignment
Interpret arguments using symbolic logic	Examination or assignment
Write numbers in various bases such as base two and the hexadecimal system	Examination or assignment
Apply formulas for permutations or combinations	Examination or assignment

NOTE: College policy requires a final exam or final week activity.

COURSE CONTENT OUTLINE:

Course: MAT 145 -Topics in Contemporary Math

The instructor must cover the first 3 modules below and spend at least a total of nine weeks on them (approximately three weeks each.)

- I. Logic: Deductive vs. inductive reasoning; sequences; symbolic logic, truth tables; conditional; valid vs invalid arguments; Modus Ponens; Modus Tollens; argument forms •
- II. Combinatorics and Sets: sets and set operations; combinations and permutations; trees; probability
- III. Mathematical Systems: number theory; bases; prime numbers; modular arithmetic

The instructor must spend the remaining time up to six weeks to be split between two of the following modules:

- IV. Geometry: Euclidean and non-Euclidean geometry; linear perspective; conic sections and analytic geometry; fractal geometry
 - V. Management Science: Graphs; Hamiltonian circuits; Euler circuits; scheduling; trees
 - VI. Voting and Apportionment: Majority rule, tournament method; voting dilemmas; apportionment; quota rule
 - VII. The Nature of Growth: Exponential equations; logarithmic equations; applications of growth and decay
- Final Week Final Examination