

Cryptology CTY Course Syllabus

		WHAT	HOW
WEEK1 Day 1	morning	Introduction to the course Preassessment Basics of Cryptology	Icebreaker Discuss syllabus and rules Define basic cryptology terms
	afternoon	Transposition Ciphers	Lecture Practice WS
	study hall	History Transposition	Code Book (intro, 1- 9) Transposition worksheet Cribbing challenge problems
Day 2	morning	Modular Arithmetic Shift Ciphers	Clock arithmetic worksheet Modular arithmetic bingo Cipher wheels Cipher wheel challenge
	afternoon	Fundamental Counting Principle Combinatorics	License to Count WS Counting Problems Activity
	study hall	History Review	Code Book (9-14, 32-44) HW sheet
Day 3	morning	GCDs Extended Euclidean Algorithm	Lecture Worksheets
	afternoon	Affine Cipher Other Substitution Ciphers	Modular inverses Discuss handouts
	study hall	History Review	Code Book (14-32) EA WS Pigpen WS
Day 4	morning	Attacks on Cryptosystems Frequency Analysis	Alphabet Stew Crack Monoalph as class
	afternoon	Frequency Analysis cont.	<i>Dancing Men</i> Cryptogram Competition
	study hall	Combating Frequency Analysis Monoalph Practice	Lecture Crack Monoalph (no spaces)

		WHAT	HOW
Day 5	morning	Vigenère Cipher Kasiski Attack	Information worksheet Practice worksheets (Cribbing)
	afternoon	Review of Week	Code Cracking Competition with Other Classes
	study hall	Review Vigenère	Vigenère Challenge Exercises Code Book (45-99)
Week 2 Day 6	morning	Incidence Attack on Vigenère	Vigenère Cracking Competition
	afternoon	Homophonic Substitution ADFGVX Playfair Cipher, Cribbing	Lecture Encrypt/Decrypt with partner
	study hall	Cribbing Intro to cipher project	“Dear Chuck” WS Code Book (101-115)
Day 7	morning	Create your own ciphers	Students create ciphers
	afternoon	Cipher Presentations	Students discuss strengths/weaknesses
	study hall	Finish presentations Practice Cribbing	“Dear Chuck” cont.
Day 8	morning	One-Time Pad Activity Crack Reused OTP	Code Book (115-124) Group presentations Revolutionary War OTP
	afternoon	Review for Midterm	Midterm Mania Jeopardy
	study hall	Study for Midterm	Finish Jeopardy Students study alone
Day 9	morning	Midterm	Midterm
	afternoon	Intro to Enigma	NOVA video
	study hall	History of Enigma	Code Book (124-189)
Day 10	morning	History of Enigma Enigma Activity	Code Book cont. (124-189) Group presentations
	afternoon	Enigma Simulation Discuss Crack of Enigma	Create Paper Enigmas Encrypt/Decrypt
	study hall	Enigma Review Intro to Research Projects	Enigma Worksheet Brainstorm ideas

		WHAT	HOW
Week 3 DAY 11	morning	Diffie-Hellman Key Exchange Mathematics behind RSA RSA	Lecture RSA worksheets
	afternoon	Research Projects	Research in Computer Lab
	study hall	Research Projects	Write Reports Code Book if done
DAY 12	morning	Presentations	Finish visual presentations Read <i>Gold Bug</i> if done
	afternoon	Presentations	Students report on research
	study hall	History	Finish Code Book
Day 13	morning	Ethics of Cryptology	Watch <i>Sneakers</i>
	afternoon	Ethics of Cryptology	Class Debate Case studies
	study hall	Study for final exam	Review worksheet
Day 14	morning	Final Exam	Assessment
	afternoon	Final Exam	Assessment
Day 15	morning	Wrap-Up	