



**Forensic DNA Typing
FRSC 3802
Dr. Tim Frasier
Fall 2010
Saint Mary's University**



COURSE SUMMARY

The goal of this class is for students to learn all aspects of common forensic DNA typing protocols and interpretation. Lectures will focus on the theory relating to each step in the process, and laboratory sessions will involve the actual DNA typing. Students will work with their own samples and DNA, and therefore at the end of the class will have their own DNA profile that we will compare to existing databases. The methods and protocols used are almost identical to those used by the RCMP in their forensic laboratories, giving students good hands-on training and experience with this work. Moreover, these techniques are similar regardless of what samples are being analyzed (for wildlife research, for example), and therefore this class will also be useful for any students interested in applying DNA analysis to the study of populations outside the field of forensics.

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TEXTBOOK *Forensic DNA Typing: Biology, Technology, and Genetics of STR Markers*

LECTURES Monday & Wednesday from 1:00-2:15 in McNally Main 210A

LABS Wednesday from 2:30-5:30 in Science 342

EVALUATION	Lab Work/Books	8 @ 4% each =	32%
	Written Report - Initial		10%
	Written Report – Final		10%
	Report Presentation		5%
	Mid-Term Exam		15%
	Final Exam		20%
	Participation		8%

Late Policy: 5% will be taken off assignments for each day that they are late. However, each student will get ONE "Free Pass" for ONE day missed, because sometimes stuff happens. Saturday and Sunday are counted as separate days (e.g. the weekend is NOT considered as only one day).

The schedule below is TENTATIVE. We will try to stick with this schedule, but it is likely that we will get off-track at one point or another. Necessary changes to the schedule will be made accordingly, and you will be notified of any changes during class hours.

Classes	Subject(s)	Book Chapters
Sept. 8	Introduction	None
Sept. 13 & 15	Review of basics of DNA, Review of molecular markers	Chapters 1-2, 16
Sept. 20 & 22	Sample collection, DNA extraction & quantification	Chapter 3
Sept. 27 & 29	PCR, qPCR, & quantification, Some problems in PCR	Chapter 4 Chapter 7 (p. 150-151)
Oct. 4 & 6	Biology of STRs, STRs used in forensics	Chapters 5-6
Oct. 13	Mid-term exam	
Oct. 18 & 20	Gel electrophoresis & visualization	Chapters 12-14
Oct. 25 & 27	Issues with STR Typing, Evaluating gels, ladders, etc...	Chapter 15
Nov. 1 & 3	DNA databases, issues, & calculations	Chapters 18-21
Nov. 8 & 10	Common typing issues	Chapter 7 (rest of it)
Nov. 15 & 17	Other types of DNA testing	Chapters 8-11, 24
Nov. 22 & 24	History & Impact of DNA Typing, Presentations	TBA
Nov. 29	Presentations/Review	

Plagiarism is treated very seriously at the University level. For your first offense, you will get a zero on that assignment. A second offense will result in consequences decided by the Senate Academic Discipline Committee. See the "Academic Integrity and Student Responsibility" section of the Academic Calendar for more details (p. 22-30). Plagiarism is fairly easy to detect, so **don't do it!!!**