

San Jose State University
Department of Justice Studies

FS 160 DNA and Crime (Winter 2014-2015 Session)

General Class Information:

Instructor:	Dr. Steven Lee.
Office Location:	On Line Hours
Telephone:	408-924-2948 office phone for messages- 510-882-9036 cell phone for emergencies USE email for correspondence
Email:	<i>sblee999@gmail.com</i>
Office Hours:	Tuesdays 1300-1500 on line Set by appointment via email
Class Days/Time:	M-F via WEBEX TBD- Note first meeting 5 Jan 2015 from 130-300 and additional dates and times TBD Webex capable computer is required- You need to log onto the invitation that will be sent 4 Jan before class time Monday 5 Jan at 1330 PDT (California time)
Classroom:	On Line

Course Description:

This course is designed to introduce students to the basics of DNA and the application of DNA to solving crime. Students will be introduced to DNA testing utilized in criminal casework and convicted offender DNA databases. Students will become familiar with the scientific concepts, methods, practices and analytical instrumentation utilized for DNA analysis. Legal issues including national standards for quality assurance, validation, legal admissibility and training will also be covered.

Course Text and materials:

Required Texts:

Fundamentals of Forensic DNA Typing. John Butler 2010. ISBN 9780123749994. Academic Press
Forensic DNA Analysis. Rudin, N. and K. Inman. 2nd Edition. **2001.** ISBN: 0849302331 Publisher: CRC Press; 2nd edition (December 21, 2001) 312 pp.

You may also replace the Butler book from 2010 with the following book-

Forensic DNA Typing: Biology and Technology Behind STR Markers John Butler PhD. **2005.** ISBN: 0-12-147952-8, 688pp. Academic Press

Required reading and Internet materials:

Journal articles and other readings will be accessible at the SJSU library, on reserve or will be accessible on line. Citations and URLs for on line materials will be provided in assignments.

These will include:

President's DNA Initiative: www.dna.gov : Now found at <http://www.nij.gov/training/courses/welcome.htm>

STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES A PATH FORWARD 2009.
NRC - http://books.nap.edu/openbook.php?record_id=12589&page=R1
NIST STRBase: <http://www.cstl.nist.gov/div831/strbase/index.htm>

NCJRS publications - <http://www.ncjrs.org/forensic/publications.html>-
http://www.ojp.usdoj.gov/nij/sciencetech/dna_pub.htm :

Human Genome Project Links-

http://www.ornl.gov/sci/techresources/Human_Genome/elsi/forensics.shtml: and others

http://www.forensic.to/links/pages/Forensic_Sciences/Field_of_expertise/DNA/ :

<http://www.mass.gov/cpcs/links/>,

Genetic Witness: Forensic Uses of DNA Testing, Office of Technology Assessment;
<http://www.wws.princeton.edu/~ota/disk2/1990/9021/9021.PDF>

Supplementary Texts (Optional)- Course material may include citations from the following:

Genetic Testimony. A guide to forensic DNA profiling. Spencer, C. 2004. ISBN 0-13-142338-X.
Pearson Education Inc. Upper Saddle River, NJ 07458. 37 pp.

Criminalistics: An Introduction to Forensic Science (College Version), 9/E, Copyright 2007, ISBN-0132216558, RE. Saferstein, Ph.D, Prentice Hall, 672pp.

<http://vig.prenhall.com/catalog/academic/product/0,1144,0132216558,00.html>

Techniques of Crime Scene Investigation, Seventh Edition. 2004 Barry Fisher. ISBN084931691X, 544 pages. CRC Press

The Evaluation of Forensic DNA Evidence Committee on DNA Forensic Science: An Update, National Research Council 272 pages, 6 x 9, 1996, ISBN 0-309-05395-1National Academies Press-Available on-line for free- <http://books.nap.edu/catalog/5141.html>

Course Delivery

The course will be delivered completely on line. Narration of key powerpoints via WebEx and will be scheduled and sent to each of you via email. Note that you are not required to 'attend' the WebEx narration meetings that will be approximately 1-2 hours in length, (just as in class on campus) however, you may find the narration of the powerpoints to be useful for clarification on certain topics. All powerpoints and assignments will be posted to the website.

Course requirements:

Midterm and Final

The first midterm will be provided to you on Friday 9 January by 1330 Pacific Time. It will be an open book exam that you will have 2 hours to complete.

You will complete the exam and email it back to me by 1530 pm Pacific Time.

Each minute that you are late in emailing the exam back, 10% will be deducted from your grade, so for example, if you are late by 1 minute, the highest grade you can achieve would be 90%. If you are 2 minutes late, the highest grade you can achieve would be 80% etc.

The final will be provided to you on Friday 16 January by 1330 Pacific time. As with the midterm, you will have 2 hours to complete it and email me your completed exam.

Same policy for the final will hold regarding returning the exam to me by email on time. (10% deducted for every minute late in returning the exam).

Exam format:

- a. 70-80% Short Answer = Multiple choice, fill in, matching, true/false with explanations: Factual
- b. 10-15% Short Essay= 1-2 paragraph or diagrammatic critical thinking questions with application of your knowledge
- c. 10-15% Essay= ½ page answers with critical thinking questions

Additional Assignments and Quizzes

Additional assignments will be required as well as short answer quizzes.

Assignments will also be required for completion on line, on time.

The quizzes will also be provided to you on line via email and you will have

15 minutes to complete them. Same policy will be in place for both assignments and quizzes: 10% will be deducted from your quiz grade for each minute late in return.

Grading:

Quizzes/Activities	100 points;
Midterm Exam	200 points;
Final exam	200 points;
Total required	500 points.

Extra Credit:

A total of 10 points may be granted for additional extra credit small group assignments and other assignments during the semester. Each assignment will be worth 1-2 points each. These extra credit points may be used to augment your final point total.

Grading Policies:

Make-up exams will not generally be permitted. However, under extraordinary circumstances, with proper documentation and approval by the instructor, a 15 page single-spaced term paper of an instructor assigned topic, may substitute for 1 exam.

On line late grading policies

Each minute that you are late in emailing any assignment including, quizzes, assignments and exams (midterm and final) back, 10% will be deducted from your grade, so for example, if you are late by 1 minute, the highest grade you can achieve would be 90%. If you are 2 minutes late, the highest grade you can achieve would be 80% etc.

Grading Scale (plus/minus)

From -To	Grade
483.5-500	A plus
467-483.4	A
450-466.9	A minus
433.5-449.9	B plus
417-433.4	B

400-416.9	B minus
383.5-399.9	C plus
367-383.4	C
< 367	F

Instructor:

Professor Lee holds an a BS from SUNY Binghamton in Biology, MS from NYU and PhD from University of California, Berkeley in Molecular Biology. Lee holds several concurrent positions including consulting positions for several biotech companies, Visiting Scholar at UC Berkeley, and an adjunct professor appointment in Chemistry at Florida International University and in Biological Sciences at San Francisco State University. He was formerly the Director of R&D at CA Dept of Justice DNA Laboratory from 1994-2000 where he served as an expert witness in DNA, directed the development, validation and implementation of new technologies and, conducted DNA training courses. He is a full member of the American Association for the Advancement of Science, the California Association of Criminalists, a Fellow of the Criminalistics Division of the American Academy of Forensic Sciences, , and is an American Society of Crime Laboratory Directors Laboratory Accreditation Board certified inspector. He also served on the FBI Technical Working Group on DNA Analysis Methods group from 1994-2000. He has taught courses in molecular biology at SFSU (1996-1998), Forensic genetics at UC Davis (1997), and most recently forensic DNA Typing of STRs at FIU (2003).

Dropping and Adding

- Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Information on add/drops are available at <http://www.sjsu.edu/advising/faq/#add>

Information about late drop is available at <http://www.sjsu.edu/aars/policies/latedrops/> Students should be aware of the current deadlines and penalties for adding and dropping classes.

JUSTICE STUDIES READING AND WRITING PHILOSOPHY

The Department of Justice Studies is committed to scholarly excellence. Therefore, the Department promotes academic, critical, and creative engagement with language (i.e., reading and writing) throughout its curriculum. A sustained and intensive exploration of language prepares students to think critically and to act meaningfully in interrelated areas of their lives—personal, professional, economic, social, political, ethical, and cultural. Graduates of the Department of Justice Studies leave San José State University prepared to enter a range of careers and for advanced study in a variety of fields; they are prepared to more effectively identify and ameliorate injustice in their personal, professional and civic lives. Indeed, the impact of literacy is evident not only within the span of a specific course, semester, or academic program but also over the span of a lifetime.

University Policies

Academic integrity

Students should know the University's Student Conduct Code, available at http://www.sjsu.edu/studentconduct/docs/Student_Conduct_Code.pdf. Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development, found at <http://www.sjsu.edu/studentconduct>.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

Accommodation of Religious Creed

In compliance with Education code, Section 89320, it is the official policy of the Justice Studies Department of San Jose State University to permit any student to undergo a test or examination, without penalty, at a time when that activity would not violate the student's religious creed, unless administering the examination at an alternative time would impose an undue hardship that could not reasonably have been avoided. Requests to accommodate a student's religious creed by scheduling tests or examinations at alternative times should be submitted directly to the faculty member responsible for administering the examination by the second week of the semester.

Reasonable common sense, judgment and the pursuit of mutual goodwill should result in the positive resolution of scheduling conflicts. The regular campus appeals process applies if a mutually satisfactory arrangement cannot be achieved.

Student Technology Resources (Optional)

Computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

Learning Assistance Resource Center (Optional)

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. The LARC website is located at <http://www.sjsu.edu/larc>.

SJSU Writing Center (Optional)

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. The Writing Center website is located at <http://www.sjsu.edu/writingcenter>.

Peer Mentor Center (Optional)

The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering “roadside assistance” to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop –in basis, no reservation required. The Peer Mentor Center website is located at <http://www.sjsu.edu/muse/peermentor>.

CASA Student Success Center

The Student Success Center in the College of Applied Sciences and Arts (CASA) provides advising for undergraduate students majoring or wanting to major in programs offered in CASA Departments and Schools.

All CASA students and students who would like to be in CASA are invited to stop by the Center for general education advising, help with changing majors, academic policy related questions, meeting with peer advisors, and/or attending various regularly scheduled presentations and workshops. Looking for academic advice or maybe just some tips about how to navigate your way around SJSU? Check out the CASA Student Success Center! It’s also a great place to study, and you can check out laptops. Location: MacQuarrie Hall (MH) 533 - top floor of MacQuarrie Hall. Contact information: [408.924.2910](tel:408.924.2910). Website: <http://www.sjsu.edu/casa/ssc/>. more information.

Tentative Course Schedule with Assignments and Due dates in RED: Note tentative schedule subject to changes that will be provided by email.

Monday 5 Jan

Biological Evidence Identification, Documentation, Collection, and Preservation

Reading

•Dates

Topics

Butler/*Inman

Introduction and Overview of DNA and Crime

Butler C1/ Inman C3&C5

Handouts-Syllabus- Reading material

Introductions: Your background, my background

Course Description, requirements, grading etc. Pair off into 2 groups of 2

Overview of Forensic DNA typing and History of Forensic DNA

Assignment 1-

a) Read the chapters indicated above in the textbooks Butler C1/Inman C3&C5

b) Visit the following 2 sites, complete/read the entire section.

c) For each of the 2 sites in b, write one question and one answer.

Due 6 Jan- Noon PDT (California time) to my email- sblee999@gmail.com

The first site is a DNA analyst training course that is extremely useful. The first part of the module is on Evidence (13 web pages)

Additional Optional Reading

○ Introduction to DNA Structure- A Molecular Graphics companion to an Introductory Course in Biology or Biochemistry. Copyright 1995, Richard B. Hallick. All rights reserved

○ http://www.blc.arizona.edu/molecular_graphics/dna_structure/dna_tutorial.html

Screening samples- Serology, Microscopy, Fluorescence or *Where is the DNA?*

Types and amount of samples required for DNA typing

References- www.fbi.gov/programs/lab/fsc/backissu/july1999/ponce.htm

● Cox, M. 1991. A Study of the Sensitivity and Specificity of Four Presumptive Tests for Blood. *Journal of Forensic Science* 36(5) 1503-1511

DNA Extraction and Quantification or *How do they get DNA?*

Overview of Typing- Methods used to isolate DNA and Quantify DNA *How much DNA do they need?*

DNA from a Cougar- *Who's' DNA is it? Human or Non-human?*

Assignment: Visit www.dna.gov - http://www.dna.gov/basics/evidence_collection and

Basic Biology of DNA <http://www.dna.gov/basics/biology/>

Read all subpages (all blue sub links in each of the sections): Crime Scene Integrity, Chain of Custody, Contamination of Evidence, Evidence Transportation and Storage, Sources and Locations of DNA Evidence.-

Weds 7 Jan-

Note Quiz to be emailed to you by 130pm- Answers due 330pm

DNA Typing: Basics of DNA Extraction and Quantitation

DNA Biology- The Scientific Basis for DNA typing(continued)

Butler C2/Inman C4

Assignment 3:

a) Re-Read Chapters indicated above Butler C2/Inman C4

b) Review sections of DNA analyst course on extraction and quantification:

http://www.nfstc.org/pdi/Subject03/pdi_s03_m02.htm

c) Start studying for Midterm to be delivered 9 January- Midterm to cover the following chapters- Butler C1-C4/ Inman C1-C6, all listed websites and powerpoints

d) **Midterm study guide will be distributed by Thursday 8 January noon**

e) **Note no written assignments due for Assignment 3**

Thurs 8 Jan

DNA Typing continued:RFLP, PCR, qPCR and STRs :

Basics of DNA typing continued, RFLP and Polymerase Chain Reaction (PCR)

Methods continued- Assessing DNA variation

Butler C1&4/ Inman C5 &C6

Evaluating DNA variation or *Does size matter?*

Introduction to RFLP

Introduction to Polymerase Chain Reaction – *Who wants to be a DNA billionaire?*

<http://www.pcrlinks.com/generalities/introduction.htm>

<http://www.accessexcellence.org/RC/VL/GG/polymerase.html>

Historical review of PCR genetic markers

Quantitative PCR

Biology of Short Tandem Repeats (STRs)

Abnormalities and consequences on Forensic STR results

Commonly used autosomal STRs, Biology of STRs
Repeat Slippage, Mutation rates, Chromosomal
Abnormalities and consequences on Forensic STR results
Reading- Moxon et al 1999. Sci Amer. 280: 94 to be distributed
Web Link- www.cstl.nist.gov/biotech/strbase

Especially useful presentation on STRbase-:<http://www.cstl.nist.gov/strbase/intro.htm>

Additional Optional Readings

Walsh et al. 1996 NAR. 24:2807-2812, Levinson et al. 1987. Mol Biol Evol. 4:203-221,
Brinkmann. 1998 Am J Hum Genet 62:1408, Henke et al. Am J Hum Genet 64:1473.
Budowle et al. 2001. JFS 46:453-489 (CODIS STR Pop)

Assignment 4:

- a) Re-Read Chapters indicated above [Butler C1&4/](#) [Inman C5 &C6](#)
- b) Study for Midterm to be delivered 9 January- Midterm to cover the following chapters- [Butler C1-C4/ Inman C1-C6](#), all listed websites and powerpoints
- c) **Note no written assignments due for Assignment 4**

Friday 9 Jan

Midterm:

Note the entire exam will be emailed to you by Friday 9 January at 1330 PDT (California Time). You will need to fill out the answer sheet for all short answer questions by typing in the answers, saving the document as a word or pdf, and then email the short answer sheet back to me by Friday 9 January by 1530 PDT. For the essay and diagram questions, you must scan or take a high quality photo of your answers (will be on one page) and **email to me by Friday 9 January by 1530 PDT**. See late policies above.

Monday 12 Jan

Biology of STRs continued and Understanding STR results, Forensic Issues

Introduction to STRs and Forensic Issues

[Butler C5-6/ Inman C6-C7](#)

Data collection (instrumentation) and Interpretation

[Butler C9-10/InmanC6-C8](#)

DNA separation methods- Gels vs. Capillaries

STR detection methods - Introduction to Fluorescence

Multiplexing

Assignment 5

- a) Read the chapters in the texts indicated above [Butler C5-6/ Inman C6-C7](#) [Butler C9-10/InmanC6-C8](#)
- b) Visit the following 3 sites, complete/read the entire site :
http://www.cstl.nist.gov/strbase/pub_pres/2_STR_Artifacts.pdf
<http://www.fbi.gov/about-us/lab/codis/swgdam.pdf/view>
<http://www.scientific.org/tutorials/articles/riley/riley.html>
- c) For each of the three sites in b, Write one question and one answer.
- d) Due 13 Jan- Noon PDT (California time) to my email- sblee999@gmail.com

Tuesday 13 Jan

Biology of STRs continued and Understanding STR results, Forensic Issues continued Topics

Statistics Databases, QA, Forensic Issues

Butler C11-14/InmanC6-C8

Mixtures

Population Stats - Genetics- Hardy-Weinberg Equilibrium

Degraded DNA, PCR inhibition, contamination, Mixed samples and Interpretation

SWGDM STR Interpretation Guidelines

Assignment 6

a) Read the chapters in the texts indicated above Butler C11-14/InmanC6-C8

b) Visit the following 3 sites, complete/read the entire site :

http://www.cstl.nist.gov/strbase/pub_pres/2_STR_Artifacts.pdf

<http://www.fbi.gov/about-us/lab/codis/swgdam.pdf/view>

<http://www.scientific.org/tutorials/articles/riley/riley.html>

c) For each of the three sites in b, Write one question and one answer.

d) Due 13 Jan- Noon PDT (California time) to my email- sblee999@gmail.com

e) NOTE- Study for quiz on this material to be delivered to you Weds 14 Jan at 130pm- Due Weds 14 Jan at 3:30pm by email to sblee999@gmail.com

Weds 14 Jan

DNA Databases, Cold Hits and Standards- Note Quiz Due 14 Jan at 330pm

Databases, QA, Forensic Issues

Butler C12&15/InmanC6-C8

Combined DNA Index System- Value of DNA databases

Levels of CODIS, Privacy Issues, QC, Searching, sample collection

Database Laws- Int'l DNA databases

Cold Hits, Unsolved crimes, other markers

Gender typing, Amelogenin and Y STRs or Is it a boy or a girl? C8-11

The "new" genetic markers- mtDNA and SNPs

Y Chromosome Markers

Educational standards for Forensic DNA analysts

Validation

Admissibility Standards and Testimony

Forensic DNA database issues- Familial Searching, Privacy and Ethical Issues

Assignment 7:

a) Read Chapters indicated above Butler C12&15/InmanC6-C8

b) Start studying for Final to be delivered 16 January- to cover the following chapters- Butler C1-C4/ Inman C1-C6, all listed websites and powerpoints

c) Midterm study guide will be distributed by Thursday 8 January noon

Note no written assignments due for Assignment

Thursday 15

Jan Legal/Ethical Considerations, Human Rights and Future of Forensic DNA

Reading: Butler Chapter 18, Inman C11

Legal/Ethical Considerations of DNA typing

DNA and legal privacy issues

Ethics of Genetic Testing-

Innocence Project- Uses of DNA in exonerating the innocent
DNA and Human Rights

Future of DNA testing- Readings (no written assignment for these needed)

Future of DNA testing- MicroCE, SNPs, DNA arrays- Bead based methods, hand held
rapid DNA and Next Generation Sequencing

http://www.ojp.usdoj.gov/nij/pdf/dna_studyreport_final.pdf

Forensic DNA profiling, Familial Searches of databases, Errors and Ethical issues

<http://dna-view.com/papers.htm>- Brenner CH, Bieber FR, Lazer D

(2006June2) [Finding Criminals Through DNA of Their Relatives](#) *Science* : Brenner CH

(1997) [Probable Race of a Stain Donor](#), *Proceedings from the Seventh Human
Identification Symposium*, Promega Corp 48-52

http://www.stlr.org/html/Staff_archive/KoopsSchellekens/Source_List+SourceUpload+3+0/Source_011.pdf

Houston PD crime lab error reports- <http://www.hpdlabinvestigation.org/> NAS Report

Assignment 8:

a) **Read the chapters in the texts indicated above (Butler 18, Inman 11)**

b) **Visit the following 3 sites, complete/read the entire site :**

<https://www.ncjrs.gov/pdffiles/dnaevid.pdf>

<http://ag.ca.gov/publications/finalproof.pdf>

<http://dnapolicyinitiative.org/resources/dna-databases-and-human-rights/>

c) **For each of the three sites in b, Write one question and one answer.**

d) **Due 16 Jan- Noon PDT (California time) to my email- sblee999@gmail.com**

c) Study for Final

d) Final Study Guide to be distributed on or before 15 Jan at noon.

Additional Optional Reading

Frye, Daubert and Federal Rules of Evidence

http://www.forensic-evidence.com/site/EVID/EL00003_4.html

STR admissibility link- http://www.denverda.org/DNA/DNA_INDEX.htm

Legal/Ethical Considerations of DNA typing and Future See URLs

DNA and legal privacy issues

<http://www.dnfiles.org/programs/law-genetics-identity>

Ethics of Genetic Testing- <http://www.nhgri.nih.gov/12010621>

● **Innocence Project- Uses of DNA in exonerating the innocent**

Exonerating the wrongfully convicted through postconviction DNA testing

<http://www.innocenceproject.org/>

Justice Project

www.thejusticeproject.org/national/solution/expanding-post-conviction-dna-testing/

Truth in Justice

<http://truthinjustice.org/>

National Clearinghouse for Science, Technology
and the Law

www.ncstl.org

www.pbs.org/newshour/bb/law/july-dec10/deathrow_10-13.html

[http://www.facebook.com/posted.php?id=158307684189820#!/pages/Duquesne-](http://www.facebook.com/posted.php?id=158307684189820#!/pages/Duquesne-University-School-of-Law-Post-Conviction-DNA-Clinic/158307684189820?v=wall)

[University-School-of-Law-Post-Conviction-DNA-Clinic/158307684189820?v=wall](http://www.facebook.com/posted.php?id=158307684189820#!/pages/Duquesne-University-School-of-Law-Post-Conviction-DNA-Clinic/158307684189820?v=wall)

<http://www.johntfloyd.com/blog/2010/09/28/actual-innocence-in-post-conviction-proceedings/>

Friday 16 Jan
Final

Week 16 **Future of DNA typing: Last Class**
12/05

Final Exam: TBD

JS 185 DNA and Crime: Course Schedule at a glance

Dates	Topics	Butler/*Inman
Week 1: 8/22	Introduction and Overview of DNA and Crime	C1/ C3&C5
Week 2: 8/29	Basics of Physical Evidence	NA / C1-C2
Week 3: 9/5	Collection and Preservation of Biol Evidence and Intro to DNA	C2 / C4
Week 4: 9/12	DNA Biology- The Scientific Basis for DNA typing(continued)	C2/ C4
Week 5: 9/19	EXAM 1 and Methods used in Forensic DNA	Butler C1-C4/ Inman C1-C6
Week 6: 9/26	Methods continued- Assessing DNA variation	C1&4 / C6
Week 7: 10/3	PCR	C4 / C5 &C6
Week 8:10/10	PCR and qPCR – Lee at ISHI- On line materials	C4 / C5 &C6
Week 9:10/17	Introduction to STRs and Forensic Issues	C5-6 / C6-C7
Week 10:10/24	Data collection (instrumentation) and Interpretation	C12-14/C6-C8
Week 11:10/31 Exam 2		Butler C5-6, 12-14/Inman C6-8
Week 12:11/7	Understanding STR results, Forensic Issues& DNA Databases Mixtures,	C18-19& C7/ C4&C8
Week 13:11/14	Understanding STR results, Issues& DNA Databases Population statistics, degraded DNA, Inhibition	C18-19& C7/ C4&C8
Week 14:11/21	Quality Control, Validation and Training Standards	Journal articles TBA
Week 15: 11/28	Thanksgiving Holiday- No class	
Week 16:12/5	Future of DNA typing: Last Class	Journal articles TBA

Final exam: Monday, December 16: 1445-1700

Grading:

Quizzes/Activities	100 points;
Exam 1	100 points;
Exam 2	100 points;
Final exam	200 points;
Total required	500 points.

Required Texts:

Fundamentals of Forensic DNA Typing. John Butler 2010. ISBN 9780123749994. Academic Press

Forensic DNA Analysis. Rudin, N. and K. Inman. 2nd Edition. **2001**. ISBN: 0849302331 Publisher: CRC Press; 2nd edition (December 21, 2001) 312 pp.

You may also replace the Butler book from 2010 with the following book-

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Website: <http://www.sjsu.edu/people/steven.lee/>

On line Training Modules

www.dna.gov and <http://www.nij.gov/training/courses/welcome.htm>

Course

What Every First Responding Officer Should Know About DNA Evidence

Collecting DNA Evidence at Property Crime Scenes

Crime Scene and DNA Basics for Forensic Analysts

DNA Extraction and Quantitation

DNA Amplification

Amplified DNA Product Separation

STR Data Analysis and Interpretation

Population Genetics and Statistics

Communication Skills, Report Writing, and Courtroom Testimony

Non-STR DNA Markers: SNPs, Y-STRs, LCN and mtDNA

Advanced and Emerging DNA Techniques and Technologies