

JOHN JAY COLLEGE OF CRIMINAL JUSTICE
The City University of New York
524 West 59th Street, New York, NY, 10019
Concepts of Forensic Science
Forensic Science 108: Lecture Syllabus
Fall 2012

General Course Info

Course Name: Concepts of Forensic Science (FOS108)

Semester: Fall 2012

Sections: 301 & 302

Day(s): Saturday

Time: 12:15pm – 2:55pm

Location: New Building L2.85

Instructor Information

Professor Mica-Mia Cartwright

Office: New Building 05.66.20

Office hours: Tuesdays and Thursdays 3pm-6pm

Or by appointment

Phone Number: 212.621.3751

E-mail address: mcartwright@jjay.cuny.edu

Course description

This course provides the non-science major with an introduction to forensic science. The lecture portion of the course establishes a foundation for understanding many of the concepts and techniques on which forensic science is built, such as those associated with crimes scene processing, physical evidence, microscopy, fingerprints, firearms and DNA. The laboratory portion of the course provides an opportunity to learn “hands-on” by using common analytical techniques.

Learning Outcomes

Reasoning:

- Determine appropriate conclusions based on scientific evidence. Be able propose a prediction of results and then test predictions.

- Students will be able to recognize that identifying specific unknown samples can be accomplished through the use of different scientific techniques and testing.
- Apply critical thinking skills in solving justice problems of a specific nature by discussing relevant court cases and the impact of science within.
- Discriminate between generally accepted science and science fiction.

Knowledge:

- Take a skeptic approach to general scientific information and legal decisions.
- Describe how data influences legal decisions and shapes methods of analysis.
- Gain an introduction to physical sciences necessary for forensic science.
- Students will learn aspects of general chemistry, analytical chemistry (chromatography), and biology (serology).

Practical Skills:

- Write scientific reports, and follow scientific procedures to obtain standardized replicable results.
- Identify unknown samples in double blind studies.
- Describe how science is used in the criminal justice system

Communication:

- Report on importance/impact, relevancy and accuracy of forensic science methods.
- Use scientific vocabulary in defending results and active discussions about science.

Course Prerequisites or Co-requisites

Prerequisite: Natural Science 107. Unless you have fulfilled certain high school science requirements, you will not be permitted to take this course without having taken natural science 107.

Lecture Requirements

- Quizzes may be given at any point during the semester and may be unannounced. Quizzes will be given during the first ten minutes of the lecture session. If you are late, you will not be allowed to take the quiz. There are no makeup quizzes.
- All readings must be done **PRIOR** to class.
- Attendance is required for lecture. A total of **three** or more unexcused absences will adversely affect your grade. Students are responsible for signing the attendance sheet and will be considered absent if they do not. Whoever has not expressed attendance within the first 15 minutes of class or arrives later will be counted as late. **Two** lateness marks will equal **one** absence. Students arriving

late must contact the instructor at the end of the session **before** leaving the lecture.

- Cell/Smart phone usage is **not** permitted in lecture and must be **turned off or placed on silent** (not vibrate). Texting or messaging during class is strictly forbidden. During an exam the usage of a cell phone or texting will result in a zero for that exam. If the student needs to use the phone they can leave the room. If caught using the phone in the room the student will be asked to leave to room and upon multiple infractions may be barred from the class for that session and marked absent.
- We cannot guarantee any makeup exams.
- Students are required to address their professors and each other with respect. This applies to in and outside of the classroom and also in electronic communications.

Laboratory Sections:

Section 301

Day: Saturday

Time: 9:25am-12:05pm

Location: New Building 3.74

Instructor: Professor Mica-Mia Cartwright*

*Grading for lab section will be done in accordance with the grading policy listed in this syllabus (see lab syllabus).

Section 302

Day: Saturday

Time: 9:25am-12:05pm

Location: New Building 3.79

Instructor: **Professor Shivonne Hutson**** (shiv.hutson@gmail.com)

****Grading for lab section will be done in accordance with the Lab Instructor's policy.**

Lecture Required Text

Johll, M. (2013). *Investigating chemistry: introductory chemistry from a forensic science perspective*. New York: W.H. Freeman.

ISBN: 9781429255226

Grading

Your lecture grade is worth **60%** of your course grade and laboratory grade is worth **40%**. Quizzes, exams, attendance and participation all are part of your lecture grade.

Lecture Grade

Best 3 Exams – 87% (29% each)

Quizzes – 10%

Attendance & Participation – 3%

Extra Credit

If you have **perfect attendance** for lecture and lab sections, **extra credit** will be given.

Lecture Exams

The four lecture exams will NOT be cumulative. You must bring your JJC ID Card in order to take each exam. You will not be permitted to take an exam if you arrive more than 15 minutes after the exam has begun. Bring at least two #2 pencils, an eraser and a pen to each exam. **NO MAKE-UP EXAMS WILL BE GIVEN.** Students are required to take **all four** lecture exams. The lowest of the four grades will be dropped; the remaining three exam grades will be weighted equally. During examinations, students may not use any extraneous reference materials (e.g. books, notes, papers), communicate with other students, or use electronic devices such as phones, pagers, or PDA's. Any student caught cheating will receive a zero for the exam, and be referred to the College's Academic Integrity Officer for further action.

Grading Scale

A = 93 – 100%	A- = 90- 92.99%	B+ = 87-89.99%
B = 83-86.99%	B- = 80-82.99%	C+ = 77-79.99%
C = 73-76.99%	C- = 70-72.99%	D+ = 67-69.99%
D = 63-66.99%	F = 62.99% and below	

Final Exam

The final exam will be held on **December 15th 2012** in the New Building L2.85 at 12:25pm.

College wide policies for undergraduate courses

(see the *Undergraduate Bulletin*, Chapter IV Academic Standards)

- A. **Incomplete Grade Policy**
- B. **Extra Work During the Semester**
- C. **Americans with Disabilities Act (ADA) Policies**

“Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office of Accessibility Services (OAS). Prior to granting disability accommodations in this course, the instructor must receive written verification of a student's eligibility from the OAS which is located at L66 in the New Building (212-237-8031). It is the student's responsibility to initiate contact with the office and to follow the established procedures for having the accommodation notice sent to the instructor.”

Source: *Reasonable Accommodations: A Faculty Guide to Teaching College Students with Disabilities*, 4th ed., City University of New York, p.3.
(http://www.jjay.cuny.edu/studentlife/Reasonable_Accommodations.pdf)

Statement of the College Policy on Plagiarism

Plagiarism is the presentation of someone else's ideas, words, or artistic, scientific,

or technical work as one's own creation. Using the ideas or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations require citations to the original source.

The following are some examples of plagiarism, but by no means is it an exhaustive list:

- Copying another person's actual words without the use of quotation marks and footnotes attributing the words to their source
- Presenting another person's ideas or theories in your own words without acknowledging the source
- Using information that is not common knowledge without acknowledging the source
- Failing to acknowledge collaborators on homework and laboratory assignments

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Students, who are unsure how and when to provide documentation, are advised to consult with their instructors. The Library has free guides designed to help students with problems of documentation. (*John Jay College of Criminal Justice Undergraduate Bulletin*, <http://www.jjay.cuny.edu/academics/654.php>, see Chapter IV Academic Standards)

Counseling Services Center (212.237.8111)

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Security:

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Please review the university's Emergency Plan: <http://www.jjay.cuny.edu/1523.php>

Tentative Schedule* (subject to change)

Day	Date	Lecture Topics	Readings
Saturday	1-Sep-12	Introduction/Math Refresher Introduction to Forensic Chemistry	Chapter 1 (pp. 3-25)
Saturday	8-Sep-12	Evidence Collection and Preservation; Forensic science and law Chromatography	Chapter 2 (pp. 27-48)
Saturday	15-Sep-12	Light and Matter Microscopy	TBD
Saturday	22-Sep-12	REVIEW EXAM 1	STUDY!
Saturday	29-Sep-12	Hairs and Fibers Structure of Drugs	Chapter 5 (pp. 135-158)
Saturday	6-Oct-12	Properties of Solutions – aqueous Drug Chemistry	Chapters 6 & 8 Pages: 165-188; 225-254
Saturday	13-Oct-12	Chemical Equilibrium and Poisons Intro to Biochemistry and DNA Analysis Serology/DNA	Chapters 13 & 14 Pages 375-417 Chapter 1 from <i>Fundamentals of Forensic DNA Typing</i> by John Butler
Saturday	20-Oct-12	REVIEW EXAM 2	STUDY!
Saturday	27-Oct-12	Fingerprints Questioned Documents	TBD
Saturday	3-Nov-12	Impressions Firearms and Toolmarks	TBD
Saturday	10-Nov-12	Anthropology/Pathology REVIEW	Reading provided by instructor from <i>Human Osteology: A laboratory and field manual</i> by William M. Bass
Saturday	17-Nov-12	EXAM 3 Chemistry of Fire and Heat	Chapter 9 (pp. 261-288)
Saturday	24-Nov-12	NO CLASS	
Saturday	1-Dec-12	Chemistry of Explosions Nuclear Chemistry – Energy, Medicine, Weapons and Terrorism	Chapter 10 (pp. 293-318) Chapter 12 (pp. 345-370)
Saturday	8-Dec-12	Glass and Soil TBD	Chapter 2 sections 2.9 & 2.10
Saturday	15-Dec-12	FINAL	STUDY!

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Requirements

- Attendance is required for laboratory sections. A total of **two or more** unexcused absences will adversely affect your grade. Students are responsible for signing the attendance sheet and will be considered absent if they do not. If you miss a lab, you will receive a grade of zero for that lab. Whoever has not expressed attendance within the first 15 min or arrives later will be counted as late. **Two** lateness marks will equal **one** absence. Students arriving late must contact the instructor at the end of the session **before** leaving the lab.
- All readings must be completed prior to attending laboratory.
- Cell/Smart phone usage is **not** permitted in lab and must be **turned off or placed on silent** (not vibrate). Texting or messaging during class is strictly forbidden. During an exam the usage of a cell phone or texting will result in a

zero for that exam. If the student needs to use the phone they can leave the room. If caught using the phone in the room the student will be asked to leave to room and upon multiple infractions may be barred from the class for that session and marked absent.

- **NO FOOD** or **DRINK** is permitted in lab. Eating, drinking and chewing gum are **NOT** permitted in lab. If you break any of these rules, you will be forced to leave lab, receive an absence for the day and receive a zero on your lab assignment!
- We cannot guarantee any makeup labs.
- Students are required to observe **all** safety rules, including wearing safety glasses during lab work and cleanup. **Failure to possess and wear safety glasses is inexcusable. Safety glasses are mandatory for all lab sessions including recitations! The minimum penalty for not having or wearing your goggles is a zero for the lab and dismissal from the period with a marked absence**
- Proper laboratory attire is mandatory. Deviation from the guidelines presented in the safety list will lead to a dismissal from the period and a mark of absent. **Students MUST wear long pants, shirts with sleeves, and closed-toe shoes at all times when working in the laboratory. Students who are dressed inappropriately will be sent home to change and given a late/absence for that day. Additionally, females must wear socks if wearing flats (ballet flats). Hair must be tied back away from the student's face.**
- Students are required to address their professors and each other with respect. This applies to in and outside of the classroom and also in electronic communications.

Required Texts and Materials for Laboratory

Lab Manual

Kubic, T & N. Petraco. (2009). *Forensic science laboratory manual and workbook*. Boca Raton, FL: Taylor & Francis.

ISBN: 9781420087192

Custom edition for John Jay College of Criminal Justice available at bookstore

Marble notebook and lab safety glasses **needed** for lab. Available at bookstore

Grading

Your laboratory grade is worth **40%** of your total FOS 108 grade (60% for lecture portion).

The lab grade will consist of:

Lab notebooks (**30%**),

General unknowns (**30%**)

Enhanced lab report (**10%**),

Final exam (**30%**).

Grading Scale

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B = 83-86.99%

C = 73-76.99%

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Tentative Course Schedule (*Subject to change)

Day	Date	Lab	Readings
Saturday	1-Sep-12	Introduction/Math Refresher/ Documentation Documentation/Chemistry Discussion	Safety Rules Page: xxi Experiment 1: Pages 3-10
Saturday	8-Sep-12	Identification/Individualization Chromatography Discussion	Experiment 2: Pages 11-16 Experiment 21: Pages 155-157
Saturday	15-Sep-12	Chromatography Lab	Experiment 21: Pages 155-157 Experiment 32: Pages 265-273
Saturday	22-Sep-12	Chromatography Lab/Microscopy Discussion Microscopy Lab	Experiments 3 & 4: Pages 17-29 Experiment 10: Pages 69-75 Experiment 13: Pages 95-100
Saturday	29-Sep-12	Microscopy Lab/Hairs and Fibers Discussion Hairs and Fibers Lab	Experiment 14: Pages 101-109 Experiments 11 & 12: Pages 77-94
Saturday	6-Oct-12	Hairs and Fibers Lab	*See 29 September 2012 Readings
Saturday	13-Oct-12	Hairs and Fibers Lab Trace Lab	*See 29 September 2012 Experiment 9: Pages 61-68
Saturday	20-Oct-12	Serology Discussion & Lab Serology Lab	TBD
Saturday	27-Oct-12	Fingerprint Discussion & Lab Fingerprint Lab	Experiment 5: Pages 31-40 Experiment 6: Pages 41-45 Experiment 7: Pages 47-52
Saturday	3-Nov-12	Fingerprint Lab Forgery Detection Discussion & Lab	See 10/27/12 Readings Experiment 24: Pages 171-178
Saturday	10-Nov-12	Ballistics Discussion & Lab Odontology Lab	Experiments 37&38: Pages 307-333 Experiments 26&27: Pages 187-211
Saturday	17-Nov-12	Crime Scene	Experiment 8: Pages 53-59 Experiment 39: Pages 335-342
Saturday	24-Nov-12	NO CLASS	
Saturday	1-Dec-12	LAB FINAL EXAM General Unknowns	
Saturday	8-Dec-12	General Unknowns	
Saturday	15-Dec-12	Finals Week	

All readings are from *Forensic Science Laboratory Manual and Workbook* unless otherwise indicated.