

**COURSE NUMBER:** CH 114 Introduction to Forensic Chemistry CRN 41119 or 41956

**INSTRUCTOR:** Brooke Taylor

**CLASS HOURS:** MF 10:00 – 11:50 or 1:00 – 2:50 in 16/147, and W 10:00 – 11:50 or 1:00 – 2:50 in 16/161

**OFFICE HOURS:** M 3:00 to 4:00, WF 9:00 to 9:50 in 16/244, TR 10:00 to 11:00 by email or by appointment.

**COURSE CREDIT:** 4 credits

**OFFICE LOCATION:** 16/244

**E-MAIL ADDRESS:** taylorb@lanecc.edu

**TELEPHONE:** (541) 463-3219

**WEBSITE:** <http://classes.lanecc.edu/>

**REQUIRED TEXTS & MATERIALS:** Richard Saferstein Criminalistics an Introduction to Forensic Science 9<sup>th</sup> or 10<sup>th</sup> ed., a scientific calculator and CH 114 Lab Packet available from the bookstore.

**Course Description:** Introduction to Forensic Chemistry is designed to provide non-science majors an introduction to chemistry in a forensic context. Topics may include measurement, density, soil analysis, chromatography, organic and inorganic analysis, chemistry of fire and DNA. This course focuses primarily of the chemistry aspect of gathering scientific information in the context of forensics but will also demonstrate the interrelationships of chemistry, physics and biological sciences. Class time and the textbook provide extensive background information while the laboratory component offers hands-on activities. This course is intended to satisfy the general education lab-science AAOT requirement.

**Class Objectives:** The primary objectives of this course are to introduce you to the basic chemical concepts using forensic chemistry examples and to apply those concepts to solve problems. Secondary objectives include building your scientific literacy and positive attitude towards science. Other objectives include increasing your knowledge of scientific inquiry as it applies to forensic chemistry and providing you with a general introduction to methods of scientific thought including critical analysis of data. While the information from the course can be used in other chemistry courses, it is not primarily intended to be preparatory in nature.

**Please Note:** This course would probably be rated PG-13 by MPAA. Several topics discussed during the term are graphic in nature. Course discussions and guest speakers may involve evidence collected from violent crime scenes and/or the identification of drugs or other illegal substances. Please discuss your concerns about such topics with the instructor. Revisions may be made in the schedule as well as the labs and activities planned with prior notification to students by the instructor.

**Student Responsibilities:** You are responsible for attending each class and lab session, completing all assignments and submitting assignments on time.

## **Keys to Student Success in CH 114:**

1. Attend each class and laboratory session and come to each meeting prepared. Class time will be spent discussing readings and analyzing evidence both independently and in groups. You will also have the opportunity to ask questions during class. If you are unable to attend you are still responsible for the material discussed in class or developed in lab on the day of your absence. PowerPoints will be posted to Moodle shortly after the class meeting.
2. Ask questions about material unclear to you. You may ask questions in class, by email, over the phone, in the Science Resource Center, or in office hours. I am here to help you learn. Please don't hesitate to ask questions. The course covers a great deal of very interesting material but moves at a fast pace. Ask questions when they come up, please don't wait until the day before an assignment is due.
3. Be organized.
4. Complete all assignments. Turn in your assignments on time. If you cannot attend class the day an assignment is due, you are still responsible for turning in your work on time.
5. Monitor your progress; check the course site on Moodle frequently. Assignment scores and course grades will be posted throughout the term on the course website (<http://classes.lanecc.edu/>) along with PowerPoint slides, class handouts, links to articles and web sites discussed in class.

**Grading Policy:** Your grade in CH 114 will be based on your completion of weekly labs worth 20% to 30% of the course grade, two in class exams each worth 20% to 30% of the course grade, chapter summaries worth 0% to 5% of the course grade (graded for completion only), as well as several small projects, activities and writing assignments worth 15% to 25% of the course grade. Students will complete a grade distribution form twice during the term, once early in the term with a second revision after the first exam. Grades will be assigned using the following breakdown:

%	100-98	97-93	92-90	89-87	86-84	83-80	79-76	75-72	71-68	67-64	63-60	59-56	<56
Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

An incomplete (I) may be given if a student has completed 75% of the course work with a passing grade.

**Grade Distribution Reports:** Students will have two opportunities during the term to decide how they would like their grade distributed between the different components of the course. Labs will count 20% to 30%, each exam will count 20% to 30%, assignments will count 15% to 25% and the chapter summaries will count 0% to 5% of the course grade. The total must equal 100%. After the first exam, students will be able to revise their grade distribution report but will not be able to submit past due work for credit. For example if you initially set the chapter summaries to be worth 0% but later in the term change your mind and want them to count for 5% you can not submit the summaries for the first four chapters late for credit. Please be sure to ask the instructor if you have questions.

**Labs:** Lab is an important and fun component of class. Labs will be scheduled for the Monday and Friday of each week, as outlined on the attached course calendar. You should plan on attending each lab session. Lab reports will be due at the beginning of the lab session the following week. One lab will be dropped. You should keep this free lab for emergency situations. No make-up labs will be possible, no exceptions please. Students are still responsible for the material covered in labs they choose not to attend. Students choosing to work in groups of two (at most) may turn in one group lab report. Each member of the group will receive the same grade. Students are expected to follow all safety instructions. Students acting in an unsafe manner will be asked to leave lab and will earn no credit for that activity. Food and drink are strictly prohibited in the labs. Lab will be worth from 20% to 30% of your course grade.

**Exams:** There will be two in class exams. Exam material will be based on class discussions, chapter summaries, labs, and article discussions. Each exam will contain a variety of question types including but not limited to multiple choice, short-answer, essay/show your work calculations. Each exam will be worth from 20% to 30% of your course grade.

**Writing Assignments, Activities and Projects:** Several small writing assignments and article reviews will be completed during the term along with other small activities. Other assignments will be developed during the term and due dates mutually agreed upon between the instructor and the class. These assignments will be worth from 15% to 25% of your course grade.

**Chapter Reading Guides:** Each chapter assigned in the text will have a reading guide based on the learning objectives listed in the text. The learning objectives will serve as discussion topics in class, topics for the labs and study guides for the in-class exams. The bolded items will be emphasized and should therefore be a main focus of your exam preparation. In other words, bolded objectives are likely to appear on exams. A summary of the objectives may be turned in and graded for completion and will be worth between 0% and 5% of your course grade. All chapter summaries will be submitted prior to the exam covering those chapters.

**Extra Credit:** Students completing all labs may earn up to 20 points extra credit towards the lab portion of your grade up to the maximum number of lab points possible. Additionally, each exam will contain some extra points. No other extra credit options will be available. College grades are assigned for points earned in class, not for extra credit.

**Make-up Policy:** No make-up labs will be permitted. One lab will be dropped. Students are still responsible for the material covered in lab. Late assignments will lose 25% per class day. If you are unable to attend an exam because of an emergency situation, you must notify the instructor before hand. You may notify me by phone, email, Moodle message, a note under my office door or through the division office. A make up exam may be arranged at the discretion of the instructor. Please do everything you can to avoid having to reschedule exams.

**Eating/Drinking Policy:** Eating and drinking is never allowed in the lab (not even from water bottles). In classrooms covered reusable cups or resealable containers must be used for beverages.

**Academic Integrity:** Cheating in any of its forms will not be tolerated. The minimum penalty for a first offense will be zero for the assignment. Any subsequent act will result in a failing grade (F) for the course.

**Students with Disabilities:** If you need support or assistance because of a disability, you may be eligible for academic accommodations through Disability Resources. For more information, contact Disability Resources at (541) 463-5150 (voice), or (541) 463-3079 (TTY), or stop by Building 1, Room 218.

**In Case Of MEDICAL or SECURITY EMERGENCIES, call 541 463-5555**

**Science Resource Center:** The SRC provides services to assist students in getting the most from their classes. You may study in groups, get assistance from tutors and instructors, check out textbooks and optional materials, take exams (with instructor permission), pick up course materials, use computers, etc all in the SRC. SRC hours for fall term are: M-F 7:30am-3pm week 1, **M-R 7:30am-6pm and F 7:30am-3pm** beginning week 2. Saturday hours after week 2 are 9am-3pm. During Finals week, hours are M-W 7:30am-6pm, R 7:30am- 3pm and F 7:30am-noon. If you use the SRC this term please register for the non-credit, no tuition CRN 44412. It's free!

Dates of Interest:

April 8<sup>th</sup> by 11:59 PM

Deadline to drop fall term classes and receive a full refund.

May ?? 7:00 AM

Staggered Advance Registration begins for summer term

May ?? 7:00 AM	Staggered Advance Registration begins for fall term
May 25 <sup>th</sup>	Deadline to make schedule changes (change grade option, register or withdraw)
?? 11:59 PM	Advance Registration Prior Term Payment Due (Pay Spring term bill to stay enrolled in Summer Term classes)

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Dates above shown with a ? have not be posted to the Academic calendar site at the time of printing.

**Please note: the attached schedule is subject to change if needed. Any changes to exam dates will be announced in class and every effort will be made to contact any student absent at time of announcement. Also, the textbook sections and page numbers listed may not include all possible areas in the text the material is covered. If you find other sections of use please let the class know.**

Week	Day	Topic	Reading for 9 <sup>th</sup> edition of text	Due Date
1	M	Course Introduction, Lab Safety, CSI Effect	Packet pp. 3 and 4	
	W	Scientific Method, CSI Effect, Metric System, Physical Properties	1 to 26, 100 to 109	CSI Effect Articles
	F lab	Measurements and Density	Packet pp. 18 to 21	
2	M lab	Refractive Index of Glass, Metric System	Packet pp. 22 and 23 and pp. 6 to 8	Measurement Lab
	W	Physical Evidence/Glass and Soil	70 to 73, 109 to 124	
	F lab	Determination of Glass Density	Packet p. 24 to 27 and pp. 9 and 10	Refractive Index Lab
3	M lab	Analysis of Soil by Density Gradient	Packet pp. 30 to 33	Glass Density Lab
	W	Elements and Compounds, Analytical Techniques	128 to 155, packet pp. 11 and 12	Writing #1
	F lab	Observing Chemical Reactions	Packet pp. 28 and 29	Soil Density Lab
4	M lab	Thin Layer Chromatography	Packet pp. 34 to 36	Observing Rxns Lab
	W	Analytical Techniques, Spectrophotometry, Inorganic Analysis	128 to 155, 160 to 167	
	F lab	Identification of Drugs and Poisons	Packet pp. 41 to 43	TLC Lab
5	M lab	Spectroscopy, Atoms of Crime	Packet pp. 37 to 40 and pp. 13 and 14	ID of Drugs Lab
	W	Inorganic Analysis, case study, exam review	160 to 175, Case of Sarah Payne	Spectroscopy Lab
	F lab	No class, Spring Inservice		
6	M	<b>Exam #1 Chapters 1, 4, 5 and 6</b>		Chapter Summaries
	W	Forensic Aspects of Arson, case study	312 to 340	
	F lab	Thermite Demo, Chemistry of Fire	312 to 340	
7	M lab	Identification of Unknowns by IR	Packet pp. 44 to 47	
	W	Nature of Blood, Principles of Heredity	346 to 358, 364 to 367	Writing #2
	F lab	Blood Identification and Typing	Packet pp. 58 to 51	IR Lab
8	M lab	Visible Spectroscopy	Packet p. 52 to 56	Blood Lab
	W	Blood, DNA	344 to 358, 382 to 403	
	F	Gel Electrophoresis Practice, Druid Dracula case	handout	Visible Spec. Lab
9	M	<b>Memorial Day, No class!</b>	Packet p. 62	
	W	DNA	382 to 410	
	F lab	Isolation and Analysis of DNA	Packet pp. 57 to the end	
10	M	Isolation and Analysis of DNA	Packet pp. 57 to the end	
	W	DNA	382 to 410	
	F lab	No lab.		DNA Lab
11	MorW	<b>Exam #2 Chapters 11, 12 and 13</b>	<b>M 10:00 to 11:50 or W 12:00 to 1:50</b>	Chapter Summaries

