Chemistry 438
Instrumental Methods: Syllabus Draft
Spring 2015

Instructor: Prof. S.L. Neal
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Office Hours: M: 10:30 - 11:30 am T: 3:30 -4 :30pm or by appointment

Teaching Assistants	Sect 020: J. Hartman	jhartman@udel.edu	831-1948	BrL 173	F: 2:00 - 3:00 pm
	Sect 021: D. Boyne	dboyne@udel.edu	831-2625	LDL 003	M: 4:45-5:45 pm
	Sect 022: P. Tu	rebacca@udel.edu	831-0667	LDL 125	T:10:30-11:30 am
	Sect 023: C. Goodwin	cgoodwin@udel.edu	831-7575	ISE 465	W:5:00 - 6:00 pm

Web Page: https://sakai.udel.edu/portal (use UD login)

Logistics: Section 020: Monday, 12:30 – 4:30 p.m.
Section 021: Monday, 6:00 – 10:00 p.m.
Section 022: Wednesday, 12:30 – 4:30 p.m.
Section 023: Wednesday, 6:00 – 10:00 p.m.
BRL 241-2

Credit: One (1) hour

Objectives: This is an upper division undergraduate laboratory in chemical analysis using electronic instrumentation. The goal of this course is to enable the student to carry out all the elements of an analysis: sample preparation; instrument calibration; data collection; data analysis; analysis validation; report writing.

Resources: The course Lab Manual (Exercises & Procedures) is distributed via Sakai. Students will likely find access to an instrumental analysis textbook useful for background and reference information. The textbook used in the pre-requisite course, CHEM437, is:

D.A. Skoog, F.J. Holler and S.R. Crouch, *Principles of Instrumental Analysis*, 6th Ed., Brooks/Cole, Cengage Learning, Australia, 2006.

Recent editions of the text used in CHEM120 and CHEM220 will also provide background on many of the laboratory exercises and procedures:

D.C. Harris, *Quantitative Chemical Analysis*, 5th-8th Eds., W.H. Freeman and Co., New York, NY, 1999-2010.

Resources: Course procedures and policies are detailed in the Lab Manual. Each lab section will be divided into up to four groups, which will conduct lab exercises as a team. The lab exercise schedule for these groups is posted on Sakai under the LabCalendar tab. The schedule is comprised of an introductory data analysis exercise, a signal processing exercise and two cycles: Cycle 1 from 3/9/15 - 4/8/15 and Cycle 2 from 4/13/15 - 5/6/15. Groups may apply to replace consecutive exercises in Cycle 2 on the

LabCalendar with an analysis of their choice and design with course instructor and teaching assistant approval. Groups must submit short proposals for their analyses by 3/23/15 in order to be considered for approval. These proposals should identify the analyte, instrument(s) and tentative procedure that will be used in the analysis. Students will have two weeks to carry out the analysis. Reports describing analyses based on measurements collected using two instruments will earn up to 25 bonus points depending on the quality of the work.

Grading: Lab reports should be submitted electronically as a pdf file via Sakai no later than one week following the lab period in which the exercise was finished. A 5 pt penalty will be assessed per work day for late reports. Each lab exercise will be graded on the following components:

Laboratory Notebook	9.5%
Pre-Lab	28.5%
Lab Report	57%
Discretionary TA Assessment	5%

See the descriptions in the Lab Report and Procedures Section of the Lab Manual for more details. A lab report grading rubric is posted on Sakai in the Resources Folder.

Final letter grades will be assigned based on the student's report grade average (highest score repeated) using a scale similar to the following:

Lab Average	Grade	Lab Average	Grade
92	A	74	C+
88	A-	70	C
84	B+	65	C-
80	B	59	D+
77	B-	55	D

Academic Honesty: You are encouraged to study The University's Policy of Academic Honesty found in the UD Student Guide to University Policies. More on the issue of academic integrity can be found in the Catalog. Policies specified there apply to this course. Also, see Course Procedures in the Lab Manual for guidance on working in teams. *All written work turned in for grading must be done independently*. Submitting work for grading is an acknowledgement that you know and agree to comply with the academic honesty policy.

Attendance: Absences from labs will be excused for medical reasons (serious illness requiring a doctor's care), family emergencies, and some University sanctioned events or employer-required absences. Scheduled absences should be made known in writing to the course instructor in advance so that arrangements can be made to adjust of due dates of laboratory assignments. Whenever possible, the student should arrange with their TA to perform missed labs in another section. The validity of unscheduled absences must be documented (e.g., Dean) to be excused.

Special Circumstances: Students requesting special accommodations in Chem 438 must already be registered with UD's ADA Center or Academic Services Center. Those students should contact the course instructor well in advance of any course activity to arrange for special accommodations that follow the terms set by the Center staff.

E-Mail: Important notices and correction of errors will be sent to the e-mail distribution list for the class to provide the fastest dissemination of the information. The registrar will include your campus e-mail account on these class distribution lists, so be sure to activate the campus account quickly and to check it regularly.

Every effort will be made to respond promptly to e-mailed questions or concerns from students. Be aware that because University antivirus software and SPAM filters may trap and remove mail - especially external mail - under some circumstances, only e-mail originating from UD accounts will receive responses. UD virus and spam filters currently remove "zip" and closely related, executable file attachments whether or not they show signs of infection, so information sent in the form of "zip" files or their executable relatives cannot be received.

Cell Phones: Placing and especially receiving phone calls in class is disruptive and discourteous to your fellow students and to the instructor. You are expected to turn your cell phone off and stow it during class, labs and course help sessions.