

Millersville University

COLLEGE OF SCIENCE
AND TECHNOLOGY

Dear Student,

Please accept my enthusiastic and warm welcome to Chemistry 232, Fall 2020. And, please plan to attend each and every required synchronous online recitation on *Monday mornings at 8 am* via Zoom (url removed).

You may also choose to... (1) complete only asynchronous online laboratory assignments; or, (2) attend some optional in-person recitations and laboratories (see schedules at the end of this syllabus), following Millersville University (MU) health and safety guidelines. MU guidance (<https://www.millersville.edu/fall2020/>) may change as the pandemic unfolds. *Due to the unfolding COVID-19 pandemic, this course may shift—at any time and on very short notice—to a fully online course, as the only option.*

Please read this syllabus closely, follow and bookmark all web links, take notes of important information, and schedule important items (like exams and your optional in-person class meeting times) on your calendar. As the semester progresses, many more important items and due dates will be communicated via MU email, D2L, and Remind. For the rest of the semester, please send me your questions—*especially chemistry questions of clarification, questions for feedback, or questions of curiosity* via email, on Remind, in D2L discussion boards, during office hours or recitations, and during laboratory class meetings.

I am grateful for this opportunity to help you increase your curiosity, knowledge, and understanding of molecular structure and reactivity. I hope you enjoy our journey through carefully curated fundamentals and examples of Organic Chemistry as related to the scientific vocabulary & symbolism, the useful concepts, the problem-solving strategies, and the research of biologically relevant small molecules (less than 900 daltons, in most cases); including, their functional groups, their molecular structures, and their more common modes of reaction.

Again, and always, please send me your questions—especially chemistry questions. And, as the semester unfolds, please stay safe, healthy, *curious*, and kind.

Kindest regards,

Dr. K

Steven Merwin Kennedy, PhD – Associate Professor

Department of Chemistry (318 Caputo Hall)

steven.kennedy@millersville.edu | www.smkenedy.org | www.millersville.edu

Exploration – Professionalism – Public Mission – Integrity – Inclusive [Community](#) – Compassion

CHEM 232 UPDATES: check your Millersville University email (<https://bit.ly/3f6CVqA>), daily; and, follow updates on **D2L** & on **Remind** (url removed).

LECTURES (CRN 4336): required fully asynchronous online via lecture quiz videos in **EDpuzzle** (url removed).

REQUIRED RECITATIONS (CRN 4336): Mondays from 8:00 – 8:50 am; online synchronous **via Zoom** (url removed)

YOUR LEARNING TEAM: find your learning team name at the top of your D2L grade book; use it to read the schedules at the end of this syllabus. The schedules will tell you when your Learning Team may attend optional in-person recitations or laboratories.

OPTIONAL IN-PERSON RECITATIONS (CRN 4336): see schedules at end of this syllabus.

LABORATORY: asynchronous online with some optional in-person face-to-face class meetings**; see the schedules at the end of this syllabus for more information on attending optional in-person laboratory meetings—wearing masks & all required Personal Protective Equipment, *until 20-NOV-2020, unless required by Millersville University to shift fully online.*

** If in-person face-to-face laboratory attendance is not possible for you, then please plan to complete the asynchronous online version of each laboratory, at any time, during the Fall 2020 semester—*no questions asked of you*; more details on weekly lab assignments will be provided in D2L, as the semester progresses.

OFFICE HOURS: on **Zoom** (url removed; **passcode:** removed); announced on **Remind** and in **D2L**; and, may change from week to week.

If you completed Spring 2020 Chemistry 231 at Millersville University, then you most likely already have all of the required materials for this course.

**REQUIRED MATERIALS;
AND, REQUIRED ONLINE ACCESS
TO WEBSITES AND SERVICES:**

1. **Daily online access to...**
Remind (url removed),
our D2L course website (<https://millersville.desire2learn.com/d2l/login/>),
EDpuzzle (url removed),
WileyPLUS (url removed),
Zoom (url removed),
and your Millersville University email account (<https://bit.ly/3f6CVqA>).
2. **Required online textbook and required graded homework bundle** via online WileyPLUS access (online textbook) and e-book (study guide & student solutions manual); ISBN 9781119430162; our WileyPLUS course code = url removed. Due to the pandemic induced online nature of this course, *for Fall 2020, this graded homework is required.*

The required online textbook and graded homework bundle includes WileyPLUS access to our Chemistry 231 and Chemistry 232 site (<https://bit.ly/2NSexNu>). And, WileyPLUS access includes a full online version of Klein's Organic Chemistry 3rd Edition textbook which is cross-linked to the graded homework and to the study guide & student solutions manual! For more practice problems, consider exploring the Orion option in WileyPLUS.

3. Any **laboratory notebook** will work for this course; you need a simple one to write in. Pictures of your laboratory work and pictures of your corresponding laboratory notebook pages may be required for uploading online into D2L assignment folders—organized by laboratory assignment, for grading.
4. Wear a **face mask**, following Millersville University safety guidelines, during any optional in-person recitations and laboratories: <https://www.millersville.edu/fall2020/index.php>.

Face Shield, Safety Goggles, or Glasses - *Examples from Google searches for face shield, safety glasses and goggles or OTG safety glasses:*

- a. <https://amzn.to/3fnaGUL>
- b. <http://bit.ly/2DgoDEm>
- c. <http://bit.ly/2EJjQZ1>

RECOMMENDED: a physical copy of the textbook (Organic Chemistry, 1st or 2nd or 3rd Edition by David R. Klein). I highly recommend getting your hands on a physical copy of the textbook (any edition) for those times when WileyPLUS online access is not feasible and/or desirable. Various options exist, including binder ready (loose leaf) versions, e-books, used books, etc.

LECTURE SCHEDULE:

Chapter in 3 rd Edition Klein	Chapter Topic & Week	Online Exam Due (upload into D2L)
Chapter 9	RC≡CR & review—Week 1	
Chapter 10	Radical—Week 2	
Chapter 11	Synthesis—Week 3	EXAM 1 – Fri. 18-Sep
Chapter 12	ROH—Week 4	
Chapter 13	ROR & Oxirane—Week 5	
Chapter 16	Dienes—Week 6	
Chapter 17 & 18	Arenes—Week 7 & 8	EXAM 2 – Fri. 23-Oct
Chapter 19	RCOR—Week 9 & 10	
Chapter 20	RCO ₂ R—Week 11 & 12	EXAM 3 – Fri. 20-Nov
Chapter 21	Enol[ate]s—Week 13	
Chapter 22	Amines—Week 15	EXAM 4 – Fri. 4-Dec
MU Academic Calendar for Fall 2020 (https://bit.ly/2NRImip)		FINAL EXAM – Fri. 11-Dec

Course evaluation scheme:

EDpuzzle Video Lectures & Questions (100 points)	10 %
Weekly Recitation Attendance & Questions (100 points)	10 %
WileyPLUS Homework Questions (100 points)	10 %
Exam 1 (100 points)	10 %
Exam 2 (100 points)	10 %
Exam 3 (100 points)	10 %
Exam 4 (100 points)	10 %
Final Exam (100 points)	10 %
Laboratory (200 points)	20 %
	∑ = 100 %

Grade distribution (in percentage points):

A	100 – 92.0	B	87.9 – 82.0	C	77.9 – 70.0	D	61.9 – 60.0
A-	91.9 – 90.0	B-	81.9 – 80.0	C-	69.9 – 65.0	D-	59.9 – 57.0
B+	89.9 – 88.0	C+	79.9 – 78.0	D+	64.9 – 62.0	F	< 57.0

Pre-requisite grade for Chemistry 326 — Biochemistry 1: the Millersville University pre-requisite Chemistry 232 grade required for enrollment into CHEM 326 (Biochemistry 1) is a **C- letter grade** for all **non-chemistry majors**; although, it is a C letter grade for all chemistry majors.

COVID-19 Pandemic & Fall 2020:

An option to attend some weekly in-person recitation and laboratory class meetings, until 20-NOV-2020, will be provided following Millersville University guidelines for Fall 2020; please follow this link for more Fall 2020 information: <https://www.millersville.edu/fall2020/index.php>

Choosing Fully Online Vs. In-Person:

All students will have the option to complete all of this course in a fully online modality. Students may be able to choose their modality for some recitations and laboratory on a week-by-week basis (for more optional in-person meeting information, find your Learning Team name in your D2L grade book and see the schedules at the end of this syllabus), as long as Millersville University (MU) continues to allow in-person class meetings. If in-person class meetings are suspended by MU, then all students must complete this course fully online.

Practice living into our EPPIIC core values (<http://bit.ly/2TISyjn>).

Learning accommodations:

Please see the Office of Learning Services in Lyle Hall (<http://www.millersville.edu/learningservices/>) as soon as possible if you have special learning needs for this class. If you have a condition that may affect your ability to perform laboratory exercises, to exit lab safely from the premises in an emergency, or which may cause an emergency during class, or lab, please discuss this in confidence with your instructor.

Academic honesty:

Please be familiar with University policy on academic honesty and dishonesty (<http://www.millersville.edu/about/administration/policies/>).

University Approved Class Attendance Policy:

Students are expected to [attend and actively participate in all classes (required online synchronous and required online asynchronous)]. It is the student's responsibility to complete all course requirements even if a class is missed. If a student misses a class for an officially excused reason, then they are entitled to make up the missed work but only at the convenience of the faculty member. Responsibility for materials presented in, assignments made for, and tests/quizzes given in regularly scheduled classes—[required online synchronous or required online asynchronous]—lies solely with the student... *please read the rest of the policy on this site:* <http://www.millersville.edu/about/administration/policies/>

Title IX Statement:

Millersville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. For more information on Title IX.

Pre-Laboratory & Laboratory Required Texts: Weekly assignments will be posted on D2L at least one week prior to each laboratory meeting or assignment due date. See page 3 for information about the required materials. More information pertaining to online asynchronous laboratory assignments will be posted to D2L as they become available.

At the completion of an in-person CHEM 232 Laboratory course, you should be able to...

1. Demonstrate proper laboratory safety when working in the lab.
2. Keep a neat and organized record of laboratory data in a notebook.
3. Demonstrate proper methods to categorize and dispose of chemical waste.
4. Set up apparatus for reactions, purifications, analysis, etc.
5. Separate or purify organic products by recrystallization, distillation, chromatography.
6. Characterize organic products by physical, chemical, and spectroscopic properties.
7. Analyze 1D & 2D NMR data to establish plausible molecular structure.

OPTIONAL IN-PERSON LABORATORY SCHEDULE (asynchronous online schedule in D2L)

Week	Activity
1	No optional in-person lab this week; see following schedules
2	Thin-Layer-Chromatography & Reaction Review 1
3	Thin-Layer-Chromatography & Reaction Review 1
4	Steam Distillation & Reaction Review 2
5	Steam Distillation & Reaction Review 2
6	Diels-Alder Reaction & Lactone Formation & Spectroscopy Review 1
7	Diels-Alder Reaction & Lactone Formation & Spectroscopy Review 1
8	Cross-Coupling & Acetal Formation & Melting Point
9	Cross-Coupling & Acetal Formation & Melting Point
10	Aspirin Synthesis & Recrystallization & Spectroscopy Review 2
11	Aspirin Synthesis & Recrystallization & Spectroscopy Review 2
12	Reductive Amination & Amide Formation
13	Reductive Amination & Amide Formation
14	Thanksgiving Break
15	Complete & submit all remaining laboratory work

COURSE DESCRIPTION: this course, Chemistry 232, is designed to reinforce your use of a sophisticated graphic, textual, and verbal scientific language and to introduce you to laboratory techniques, reaction methods, and methods of analysis; **Organic Chemistry**—an active field of study, research, and scholarship—provides molecular level foundation for deeper comprehension and better problem-solving in physical organic chemistry, synthetic organic chemistry, bioorganic chemistry, biochemistry, green chemistry, analytical chemistry, environmental chemistry, molecular biology, genetics, pharmaceuticals, both human and veterinary medicine, botany, biotechnology, toxicology, and many other related fields. Organic chemicals are everywhere and are estimated to make up over 95% of the more than 165 million (and counting) known chemical substances (<http://bit.ly/2WZ8mKt>).