



# Marshall University Syllabus

## College of Science

### Chemistry

#### Course

CHM 480, Special Topics: Brownies, Beer & Bacon Chemistry, Section 201

#### Course Description

A study of the chemistry, physics, and biology of food and beverages.

#### Credits

3.00 (undergraduate)

#### Prerequisites

Grade of C or better in CHM 356 or consent of instructor

#### Term/Year

Spring 2024

#### Class Meeting Days/Times and Locations

T 12:45-1:45 PM S 460

R 12:35-2:05 PM HKT (911 3rd Ave.)

#### Academic Calendar

For beginning, ending, and add/drop dates, see the [Marshall University Academic Calendar](https://www.marshall.edu/academic-calendar/) (URL: <https://www.marshall.edu/academic-calendar/> ).

#### Instructor

Dr. Laura McCunn-Jordan

*\*Please call me Dr. McCunn*

#### Contact Information

- Office: S 466 Masks may be required during in-person office visits.
- Office Hours:
  - MWF 9:55 – 10:55 AM (in person or virtual in S 466)
  - T 9 - 11 AM (virtual in Teams)
  - For virtual office hour visits, schedule at least one hour in advance via the Bookings link at Blackboard:  
<https://outlook.office365.com/owa/calendar/DrMcCunnOfficeHours@livema>

[rshall.onmicrosoft.com/bookings/s/IDzRreI38EmTQ6x4PU\\_aKg2](https://rshall.onmicrosoft.com/bookings/s/IDzRreI38EmTQ6x4PU_aKg2) )

- Other times by appointment (email the instructor to request)
- ***If you can't meet during those times or if you need help on short notice, email or call the instructor to request an appointment. Simple homework questions can be answered via email.***
- Office Phone: 304-696-2319
- Marshall email: [mccunn@marshall.edu](mailto:mccunn@marshall.edu)

## Health and Safety Information

All members of the Marshall University community are expected to always observe health and safety protocols. This includes general health and safety protocols as well as specific protocols that might emerge in response to community and campus health conditions.

## Required and/or Recommended Texts and Materials

1. Robert L. Wolke; *What Einstein Told His Cook*. W.W Norton: New York, 2002. ISBN 978-0-393-32942
2. Adam Rogers; *Proof: The Science of Booze*. ISBN 978-0544538542
3. Access to MU Online and a Marshall email account
4. Government-issued photo identification that include birthday (in order to consume alcohol)
5. Transportation to Huntington's Kitchen
  - On-street parking
  - Parking garages: 3<sup>rd</sup> Ave. Garage, 4<sup>th</sup> Ave. Garage, Pullman Square Garage
  - Marshall Shuttle, Route 10 (the Green Machine)
  - <http://www.tta-wv.com/wp-content/uploads/2021/08/Route-10-WEEKDAY.pdf>

## Course Student Learning Outcomes

The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.

Course student learning outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Understanding of the molecular compositions of various types of foods	<ul style="list-style-type: none"><li>● lectures</li><li>● textbook readings</li></ul>	<ul style="list-style-type: none"><li>● weekly assignments</li><li>● exams</li></ul>
Understanding the physical chemistry of food preparation processes, including the interaction of molecules and energy.	<ul style="list-style-type: none"><li>● lectures</li><li>● textbook readings</li><li>● kitchen activities</li></ul>	<ul style="list-style-type: none"><li>● weekly assignments</li><li>● exams</li></ul>

Identification of chemical reactions that play an important role in preparation of food.	<ul style="list-style-type: none"> <li>• lectures</li> <li>• textbook readings</li> </ul>	<ul style="list-style-type: none"> <li>• weekly assignments</li> <li>• exams</li> </ul>
Identify common organic compounds in food and beverages	<ul style="list-style-type: none"> <li>• lectures</li> <li>• readings</li> <li>• kitchen activities</li> </ul>	<ul style="list-style-type: none"> <li>• weekly assignments</li> <li>• exams</li> </ul>
Describe substance abuse and substance dependence	<ul style="list-style-type: none"> <li>• lectures</li> <li>• readings</li> </ul>	<ul style="list-style-type: none"> <li>• weekly assignments</li> <li>• exams</li> </ul>

## Course Requirements/Due Dates

Weekly assignments will be announced in class and posted at Blackboard. Exam dates are listed in the schedule below.

## Grading Policy

weekly assignments	300 points
participation	200 points ( <i>see Attendance Policy</i> )
midterm exam	250 points
final exam	<u>250 points</u>
	<b>1000 TOTAL POINTS</b>

A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: 0-59%

The percentage of total points earned will be rounded to the nearest whole percentage. If you believe there has been an error in the grading of your work, please consult the instructor.

## Attendance/Participation Policy

The participation grade will be based on attendance and contributing to class activities. Points may be deducted for failure to perform assigned kitchen cleaning tasks, failure to complete assigned readings prior to class, unexcused absences, and excessive tardiness. Students who have an excused absence must contact the instructor to arrange makeup work no later than the next class meeting after the excused absence. Three or more unexcused absences will result in a penalty of one letter grade (100 pts.) for the course. The attendance policy includes attending Brew Day on March 30th (a Saturday) for at least one hour. Students who have an excused absence must contact the instructor no later than the next class period following the excused absence in order to arrange makeup work.

## University Policies

By enrolling in this course, you agree to the University Policies. Please read the full text of each policy (listed below) by going to [MU Academic Affairs: University](#)

[Policies](https://www.marshall.edu/academic-affairs/policies/). (URL: <https://www.marshall.edu/academic-affairs/policies/> )

- Academic Dishonesty Policy
- Academic Dismissal Policy
- Academic Forgiveness Policy
- Academic Probation and Suspension Policy
- Affirmative Action Policy
- Dead Week Policy
- D/F Repeat Rule
- Excused Absence Policy for Undergraduates
- Inclement Weather Policy
- Sexual Harassment Policy
- Students with Disabilities (Policies and Procedures)
- University Computing Services Acceptable Use Policy

## Other Policies

1. Please silence cell phones during class. The instructor reserves the right to answer any ringing phones during lecture or dismiss the offending student.
2. Use of cell phones and other electronic/communication devices during exams and exams will be considered as cheating. The only materials permitted during an exam are a non-programmable calculator, pen/pencil, and those provided by the instructor.
3. Class announcements may occasionally be made via email to your university email address. Please check it on a regular basis.
4. Posting any course material, including assignments, notes, exam or homework questions, and solutions, to any website or database is a copyright violation and will be reported as an act of academic dishonesty policy. Accessing such information may also be reported as academic dishonesty.
5. The use of generative AI for any assignment in this course is prohibited.

## Course Schedule

Week of	Assigned Reading	Topic	Thursday Kitchen Activity
1/8	Food and kitchen safety videos; Wolke: Introduction; Chapter 6	<ul style="list-style-type: none"><li>• review of biochemistry</li><li>• review of physical chemistry</li><li>• nutrition labels</li></ul>	<ul style="list-style-type: none"><li>• measurements/weights</li><li>• strawberry spheres</li><li>• fizzy fruit</li><li>• lime juice foam</li></ul>
1/15	Wolke: Chapter 1	<ul style="list-style-type: none"><li>• sugars and sweeteners</li><li>• metabolic pathways of sugars</li></ul>	<ul style="list-style-type: none"><li>• caramel sauce</li><li>• doodads</li></ul>
1/22	Wolke: Chapter 2	<ul style="list-style-type: none"><li>• sodium</li><li>• brining, pickling</li><li>• processed meats</li></ul>	<ul style="list-style-type: none"><li>• refrigerator dill pickles</li><li>• pickled pears</li><li>• infused butters and oils</li></ul>

1/29	Wolke: Chapters 3-4	<ul style="list-style-type: none"> <li>• fats and oils</li> <li>• baking chemistry</li> <li>• Maillard reaction</li> </ul>	<ul style="list-style-type: none"> <li>• bread (cake vs. bread flour)</li> <li>• egg wash</li> </ul>
2/5	Wolke: Chapter 5	<ul style="list-style-type: none"> <li>• proteins</li> </ul>	<ul style="list-style-type: none"> <li>• chocolate chip cookies</li> <li>• time test for protein breakdown (squid)</li> </ul>
2/12	Wolke: Chapter 8	<ul style="list-style-type: none"> <li>• heating and cooling processes</li> <li>• cooking appliances</li> </ul>	<ul style="list-style-type: none"> <li>• microwave wavelength measurement</li> <li>• sorbet, ice cream, gelato(?)</li> </ul>
2/19	Wolke: Chapter 9	<ul style="list-style-type: none"> <li>• chocolate</li> <li>• molecular gastronomy</li> </ul>	<ul style="list-style-type: none"> <li>• chocolate mousse</li> <li>• powdered peanut butter</li> <li>• marshmallows</li> </ul>
2/26	Rogers: Introduction	<ul style="list-style-type: none"> <li>• Midterm exam on 2/27</li> </ul>	<ul style="list-style-type: none"> <li>• TBA</li> </ul>
3/4	Rogers: Yeast; Sugar	<ul style="list-style-type: none"> <li>• fermentation</li> </ul>	<ul style="list-style-type: none"> <li>• sauerkraut, chow chow</li> </ul>
3/11	Rogers: Fermentation	<ul style="list-style-type: none"> <li>• fermented foods &amp; cheese</li> </ul>	<ul style="list-style-type: none"> <li>• ricotta, mascarpone, mozzarella</li> <li>• popovers</li> </ul>
3/18	Spring Break		
3/25	Rogers: Distillation, Aging	<ul style="list-style-type: none"> <li>• beer, wine, cider, mead, spirits</li> </ul>	<ul style="list-style-type: none"> <li>• beer tasting with guest lecturer Dr. Philippe Georgel</li> </ul>
3/30 (Sat.)	Brew day; location TBA ( <b>must attend at least one hour</b> )		
4/1	Rogers: Smell and Taste	<ul style="list-style-type: none"> <li>• beer, etc. continued</li> </ul>	<ul style="list-style-type: none"> <li>• mead tasting with guest lecturer Dr. Brian Antonsen</li> </ul>
4/8	Rogers: Body and Brain; Hangover	<ul style="list-style-type: none"> <li>• substance dependence, hangovers</li> <li>• graduate student presentations</li> </ul>	<ul style="list-style-type: none"> <li>• tour of The Peddler with Head Brewer Jay Fox</li> </ul>
4/12	Last day to withdraw from full-semester course		
4/15	Wolke: Chapter 7	<ul style="list-style-type: none"> <li>• coffee, tea, kefir</li> <li>• guest lecture by Dr. Derrick Kolling</li> </ul>	<ul style="list-style-type: none"> <li>• coffee brewing techniques</li> </ul>
4/23 Tuesday 12:45-2:45 PM FINAL EXAM Exam)			