



KIIS Paris-Munich, Winter 2020-2021

CHEM 101 Introduction to Chemistry: The Chemistry of Food

Instructor: Dr. Amanda Hughes (Brenes)

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Instructor's office hours: on site and by appointment

Syllabus subject to change

1. Course Description: *Why are the stomach contents of calves added to milk in order to make cheese? What causes a soufflé to be so light and airy?* Students will find answers to these questions and more as they dive head-first into the delicious world of culinary chemistry! Prepare your taste buds for tour de force as we visit two food-centric European cities and deconstruct the chemistry behind local treats. Germany is known for culinary delights such as sauerkraut, pretzels, cheese, and beer. While France is known for its crepes, soufflés, baguettes, and wine. We will spend our days tasting the local fare, while learning about the ins and out of the chemistry behind the food.

2. Overall KIIS Program Student Learning Outcomes:

KIIS Study Abroad Mission Statement:

KIIS creates and offers high-quality education abroad programs for students from diverse backgrounds that promote deep international learning, are integrated into the curriculum, and encourage critical and creative thinking. Our goal is to help transform students into global citizens who have personal and professional skills for lifelong enrichment. We strive to go beyond generalizing headlines and outdated cultural clichés to help foster a nuanced appreciation of the world in which we live.

Students participating in KIIS Study Abroad programs aim to:

- 1) Articulate the relationship between ideas, experiences, and place;
- 2) Develop tools to engage with diverse people in the local cultures; and,
- 3) Explore other peoples' values and clarify their own.

In the equivalent of one, single-spaced typed page, reflect on:

How has this experience made you think – or act – differently about the world around you? Please consider the 3 SLOs discussed. Please don't consider course content in your response; instead, think beyond it, and be as specific as possible.

3. Course Objectives and Specific Learning Outcomes:

1. Become familiar with common chemistry terms and topics: stoichiometry, atoms, molecules, gas law.
2. Develop an understanding of different chemical processes related to food preparation: fermentation, heat, preservatives.
3. Achieve an understanding of the three main macromolecules making up all food: carbohydrates, lipids, protein.
4. Discover how your body uses and stores food for energy.
5. Identify key ingredients in local cuisine and their impact on the taste/cooking/chemistry of that dish.

4. Major Topics covered in the Course

- What is an atom
- Stoichiometry
- Drawing chemical structures
- Acids and bases
- Carbohydrates
- Lipids
- Proteins
- Biochemistry of energy storage

5. Fulfillment of General Education Requirement: This course fulfills the AOI science requirement at Georgetown College, and may do the same at other universities.

6. Required Readings and Materials

Students are expected to purchase and read before the start of the trip, *What Einstein Told his Cook: Kitchen Science Explained* by Robert L Wolke. Presentations, quizzes, and assignment uploads will be available online for students through the CANVAS course website.

7. Graded Assignments

- **20% Participation/Drive:** You will be expected to participate in all activities outlined by the instructor. This includes being on time to any meeting points/lectures/excursions and being open to tasting new things. You are expected to be engaged in activities and have fun!
- **40% Food Journal:** You will maintain a daily food journal where you will record the contents of one meal that you had that day. You should include the ingredients/components of that meal and discuss the chemistry of how it affects the taste/smell/cooking of that item. Example entries will be provided.
- **30% Quizzes:** There will be online quizzes that cover the chemistry concepts we will discuss.
- **20% Infographic:** As a final project, the students will generate an infographic of their favorite meal/snack/foodstuff that consumed and present it at the airport on the day of departure.

8. Attendance Policy:

KIIS program participants are **expected to be punctual to and in attendance at all classes**, presentations, meetings and required excursions, and to remain with the program for the full academic period. Unexcused absences from classes and/or mandatory meetings will result in a lowering of the student's final grade, as will excessive tardiness. Multiple unexcused

absences could result in expulsion from the program. Any absence from an academic class session must be excused for medical reasons.

9. Disability Accommodation:

KIIS will make every reasonable effort to provide accommodations for program participants with special needs or disabilities, but we cannot guarantee that we will be able to do so. Be aware that many foreign countries do not have comprehensive legislation comparable to the Americans with Disabilities Act (ADA). As a result, businesses and other establishments operating in foreign countries may not be able to provide accommodations.

If you have a disability accommodation need, we recommend you contact your KIIS Campus Representative, <https://www.kiis.org/about-kiis/contact-us/campus-representatives/> early in your program selection process so that s/he has time to discuss any specific needs, including which KIIS programs may be best suited. You also are welcome to contact KIIS Assistant Director, Maria Canning, maria.canning@wku.edu, to discuss your disability accommodation needs (e.g. housing, transportation, excursions, class schedule, etc.).

Immediately after acceptance, notify KIIS Assistant Director, Maria Canning, or KIIS Office Manager, Haley McTaggart, haley.mctaggart@wku.edu, if you have a special need or disability that might require any form of accommodation abroad. Failure to notify KIIS may prevent you from participating on your KIIS program.

If you require any accommodations abroad, you must provide KIIS Assistant Director, Maria Canning, or KIIS Office Manager, Haley McTaggart, an accommodation letter from your home campus' disability accommodation office that lists the accommodations you are eligible to receive. Please do not request accommodations directly from your KIIS Program Director or other KIIS Faculty; the KIIS Office will notify your KIIS Program Director and/or Faculty after we have received your above accommodation letter.

In some cases, you may need to make arrangements for a caregiver to join you on your KIIS program, should your physician, campus disability accommodation office, or KIIS make such a recommendation or require it.

10. Title IX / Discrimination & Harassment:

Recent attention to gender discrimination and sexual harassment at colleges and universities reminds us of the importance of adhering to standards of ethical and professional behavior. KIIS Study Abroad is committed to supporting and encouraging safe and equitable educational environments for our students, faculty, and program directors. Students, faculty, and program directors are required to be civil and treat each other with dignity and respect. As such, harassment and/or discrimination of any kind will not be permitted or tolerated.

Sexual misconduct (sexual harassment, sexual assault, and sexual/dating/domestic violence) and sex discrimination are violations of KIIS policies. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to a) KIIS Assistant Director Maria Canning (+1-859-200-1000) or KIIS Executive Director, John Dizgun (+1-270-227-2288), b) WKU's Title IX Coordinator, Andrea Anderson (270-745-5398 / andrea.anderson@wku.edu) or WKU's Title IX Investigators, Michael Crowe (270-745-5429 / michael.crowe@wku.edu) or Joshua Hayes (270-745-5121 / joshua.hayes@wku.edu). Please note that while you may report an incident of sex/gender

based discrimination, harassment and/or sexual misconduct to a KIIS program director and/or faculty member, KIIS program directors and faculty are considered "Responsible Employees" of Western Kentucky University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator.

If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center, <https://www.wku.edu/heretohelp/> at 270-745-3159.

For more information on KIIS Title IX, see <https://www.kiis.org/students/health-safety/title-ix-clery/>; additional Title IX resources can be found here <https://www.wku.edu/eoo/brochure2019update.pdf>.

Everyone should be able to participate on a KIIS program, attend a KIIS event, or work in a KIIS environment (e.g. KIIS office) without fear of sexual harassment or discrimination of any kind. Be respectful of each other.