

Group Study - Research Advances in Food Engineering Syllabus

FDSCTE 7194 Spring 2022

Course Information

- **Course times and location:** Friday 2-3:30 pm in Zoom; all instructions occurs in Carmen each week
- **Credit hours:** 1
- **Mode of delivery:** 100% Distance Learning

Instructor

- **Name:** V.M. Balasubramaniam
- **Email:** Balasubramaniam.1@osu.edu
- **Phone Number:** 614 292 1732
- **Office location:** 333 Parker Food Science and Technology
- **Office hours:** Friday 11-12, by appointment.
- **Preferred means of communication:**
 - My preferred method of communication for questions is **email**.
 - My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Teaching Assistant

- **Name:** To be determined
- **Email:** TBD
- **Recitation times:** TBD

Course Prerequisites

Graduate standing in Food Science and Technology; or Food Ag Bio Engineering



Course Description

This class is part of a multi-university seminar course organized by USDA Committee NC1023-Engineering for Food Safety and Quality. The course provides a broad perspective of innovation as applied to food engineering. Students learn general overview and case studies of current and emerging research areas in food and agricultural engineering and processing by different research groups in the U.S.

The course will demonstrate the efforts among food engineers and scientists in the nation to advance engineering knowledge and technologies for the purpose of improving food safety, quality, and security, and enhancing health benefits of food products through extensive research in focused areas.

Topics

Seminar topics for this course broadly include the following:

- Food Engineering research advances
- Food safety and process validation
- Food and health engineering
- Improving food quality
- Sustainability and waste reduction

Learning Outcomes

By the end of this course, students should successfully be able to:

- Become familiar with approaches used in by-product utilization and value-added processing in food and agricultural industries;
- Become familiar with the engineering and processing approaches for health;
- Learn recent developments in engineering and processing in sustainable food systems.



How This Course Works

Mode of delivery: This course is 100% online. Attendance at synchronous Zoom sessions is required, but links to recordings of the seminar will be provided in Carmen for those unable to attend due to a valid excuse (see Attendance Policy below).

Pace of online activities: This course is divided into **weekly modules** that are released one week ahead of time. Typically one week prior to a seminar, the instructor will assign certain handouts from seminar speakers (journal articles, slides, reading material) via Carmen. Students are expected to review the material prior to seminar. Students also are expected to participate in the Zoom meeting discussion as well as breakout room discussions. Students are expected to keep pace with weekly deadlines, but may schedule their efforts freely within that time frame.

Credit hours and work expectations: This is a 1 credit-hour course. According to [Ohio State bylaws on instruction](http://go.osu.edu/credithours) (go.osu.edu/credithours), students should expect around 1 hour per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 2 hours of homework (reading and assignment preparation, for example) to receive a grade of C average.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, I have the following expectations for everyone's participation:

- **Participating in online activities for attendance: at least once per week**
You are expected to log in to the course in Carmen every week. During most weeks you will probably log in many times. If you have a situation that might cause you to miss an entire week of class, discuss it with the instructor *as soon as possible*.
- **Office hours: optional**
My office hours are optional.
- **Attendance policy:** In cases of illness or emergency please contact the instructor via email as soon as possible and include appropriate documentation (doctor's note, funeral notice, etc). Links to recorded Zoom video sessions will be provided in Carmen for students with a valid excuse for missing the synchronous Zoom sessions, students will need to review these video links and complete the assignment to receive credit.



Course Materials, Fees and Technologies

Required Materials and/or Technologies

- All required materials will be made available via the Carmen course website. Students are expected to have access to OSU Carmen and Zoom software.

Recommended/Optional Materials and/or Technologies

- None

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Webcam:** built-in or external webcam, fully installed and tested
- **Microphone:** built-in laptop or tablet mic or external microphone
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for [technology and internet access](https://go.osu.edu/student-tech-access) (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](https://go.osu.edu/add-device) (go.osu.edu/add-device) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.
- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.



If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)
- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)
- [Recording a slide presentation with audio narration and recording, editing and uploading video](https://go.osu.edu/video-assignment-guide) (go.osu.edu/video-assignment-guide)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** go.osu.edu/it
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu



Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points
Participation in weekly Zoom seminars	50
Weekly seminar feedback forms	50
Total	100

See [Course Schedule](#) for due dates.

Descriptions of Major Course Assignments

Participation in weekly Zoom seminars

Description: Points will be awarded based on your participation in weekly Zoom seminars. Instructor plan to monitor participation via zoom participant link.

Academic integrity and collaboration: You must attend the seminar to receive these points. The instructor will monitor attendance in the Zoom session. If you are unable to attend the synchronous seminar for valid reasons (illness, emergency), please reach out to the instructor as soon as possible (see Attendance Policy).

Weekly seminar feedback form

Description: Submission of weekly seminar feedback form summarizing key information learnt, knowledge gap and related observations. Seminar feedbacks are due one week from the day of the seminar.

Academic integrity and collaboration: Your written assignments must be your own original work.

Late Assignments

Please refer to Carmen for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments. For information regarding making up work due to absence, see Attendance Policy on page 3.

Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability throughout the course. Remember that you can call [614-688-4357 \(HELP\)](tel:614-688-4357) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact me first through my Ohio State email address.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For assignments submitted before the due date, I will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

Satisfactory / Unsatisfactory. Need to secure minimum 70 cumulative points to earn satisfactory grade.



Other Course Policies

Discussion and Communication Guidelines

The following are the expectations for how the instructor and student should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online. The instructor will provide specific guidance for discussions on controversial or personal topics.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.
- **Synchronous sessions:** During our Zoom sessions the instructor ask you to use your real name and a clear photo of your face in your Carmen profile. During our full-group lecture time, you may turn your camera off if you choose. When in breakout rooms or other small-group discussions, having cameras and mics on as often as possible will help you get the most out of activities. You are always welcome to use the [free, Ohio State themed virtual backgrounds](http://www.osu.edu/downloads/zoom-backgrounds.html) (www.osu.edu/downloads/zoom-backgrounds.html). Remember that Zoom and the Zoom chat are our classroom space where respectful interactions are expected.

Academic Integrity Policy

See [Descriptions of Major Course Assignments](#) for specific guidelines about collaboration and academic integrity in the context of this online class.

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's [Code of Student Conduct](http://studentconduct.osu.edu) (studentconduct.osu.edu), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."



The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- [Committee on Academic Misconduct](http://go.osu.edu/coam) (go.osu.edu/coam)
- [Ten Suggestions for Preserving Academic Integrity](http://go.osu.edu/ten-suggestions) (go.osu.edu/ten-suggestions)
- [Eight Cardinal Rules of Academic Integrity](http://go.osu.edu/cardinal-rules) (go.osu.edu/cardinal-rules)

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also

have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member."

Diversity

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment.

To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit:

- <https://odi.osu.edu/>
- <https://odi.osu.edu/racial-justice-resources>
- <https://odi.osu.edu/focus-on-racial-justice>
- <http://mcc.osu.edu/>

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://equity.osu.edu/>.

Your Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Accessibility Accommodations for Students with Disabilities

Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability including mental health, chronic or temporary medical conditions, please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with [Student Life Disability Services \(SLDS\)](#). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services.

Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: slds.osu.edu
- Email: slds@osu.edu
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](https://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](https://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)



Course Schedule

Refer to the Carmen Canvas course for up-to-date due dates. Weekly seminars provided by professors from participating universities who are part of NC1023 Committee.

The following is a representative seminar speakers and titles.

Remote Instruction; Friday 2 PM- 330 PM Eastern

Topical Area	Week	Date	Topic	Speaker
Advances in thermal processing of food and biomaterials	1	Jan 14	New R&D and Commercial Capabilities for Advanced Thermal Processing and Aseptic Packaging of Single-phase and Multiphase Foods	Josip Simunovic NC State
	2	Jan 21	Electric Fields and their Effects on Vegetative Microorganisms, Spores and Enzymes	Sudhir Sastry, the Ohio State University
	3	Jan 28	Application of Microbial Inactivation Models for Validating Multi-Variate Dynamic Pathogen Control Processes (Low-Moisture Foods Case Study)	Bradley Marks, Michigan State University
	4	Feb 4	Student presentations	
Advances in Non-thermal processing of food and biomaterials	5	Feb 11	Novel approaches to improve safety of fresh produce processing system (working title)	Rohan Tikekar University, Maryland and Nitin Nitin, University of California Davis
	6	Feb 18	Improving the physical properties of fats using high-intensity ultrasound	Silvana Martini, Utah State University
	7	Feb 25	3D food printing for food processing and personalized nutrition	Ali Ubeyitogullari, University of Arkansas
	8	Mar 4	Student presentations	
Understanding and sensing food quality and safety	9	Mar 11	Hyperspectral imaging applications	Kumar Mallikarjunan, University of Minnesota
	10	Mar 18	Food physics: a framework for understanding and optimization of food processes	Ashim Datta, Cornell University
	11	Mar 25	Data science applications in food processing and food safety	Carmen Gomes, Iowa State University
	12	Apr 1	Student presentations	