

Fall 2024

CHE 101-001: Introduction to Chemical Engineering

Lisa Axe

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CHE 101- INTRODUCTION TO CHEMICAL ENGINEERING

Professor Lisa Axe

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Office Hours: Tuesdays 3:30 to 5:00 PM

Course Description:

An introduction to the field of chemical engineering and to the Otto H. York Department of Chemical and Materials Engineering. Topics include the curriculum, student professional societies (AIChE Student Chapter), undergraduate research opportunities, cooperative education, and learning more about the chemical engineering profession and career pathways.

Course Goals:

- Introduce faculty and careers in chemical engineering
- Learn about experiential learning opportunities
- Attend AIChE Student Chapter Meetings
- Create your academic plan, resume, and become familiar with Career Development Services Resources
- Attend the Career Fair

Grading:

Assignments	90%
Participation	10%

Required Assignments:

1. Submit a one page, double spaced, essay (with your name in the upper left) on how you will impact a National Academy of Engineering (NAE) Grand Challenge in your career due **December 5, 2024**. You will also present your essay in 3 minutes with the following slides (practiced) on **December 5, 2024**:
 1. Title page
 2. Career Goal with three supporting points
 3. Grand Challenge that you will impact with three supporting points
 4. Concluding remark with three supporting points on how you will achieve your goalThe draft presentation (hard copy of PPT) is due **November 21, 2024**
<http://www.engineeringchallenges.org>
2. Submit career goals – due **September 5, 2024**.
3. Meet with a professor during office hours and summarize in one page, double spaced, and typed their current research activities with your name and class in upper left: Due date **November 7, 2024**.
4. Attend four AIChE Student Chapter Meetings signed off (using the form provided in Canvas) by the AIChE Chapter E-Board: Due by **December 5, 2024**.
5. Develop your Academic Plan that shows the courses (i.e., course number, title, and credits) you will take each semester beginning with your first semester at NJIT and needs to include at least one experiential learning experience: Due to your Advisor Dr. Obuskovic by **October 31, 2024** (example in Canvas)

This is a freshman-level course, and by university policy attendance is required and will be taken. **If you miss more than three classes, you will not meet the attendance requirement and you will fail the course.** If you cannot attend class due to a medical or emergency condition, you will need to obtain an excused absence from the Dean of Students. Otherwise, you will not have an excused absence. Please note that you need to attend the entire period for each class, and you must complete all assignments by the due date.

Class Preparation and Expectations:

Research has demonstrated that the best learning happens when students are actively engaged, attend class, and come prepared to think, participate, and learn. All members of the class are expected to always contribute in a respectful, welcoming, and inclusive environment.

Department Cell Phone Policy: The use of cell phones, laptops and other electronic devices is prohibited during class time unless their use for educational activities has been explicitly approved and announced by the instructor. Exceptions include documented medical conditions that require the use of a device; please see the instructor.

NJIT Honor Code: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at [NJIT Academic Integrity Code](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. **Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.** If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

Accommodations: If you require accommodations, please contact the Office of Accessibility Resources and Services, and then please make sure I am informed. Communication on your Accommodation Eligibility from the Office of Accessibility Resources and Services authorizing your accommodations will be required.

Generative AI: This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.

AIChE Code of Ethics

Board approved November 2015

The Board of Directors of the American Institute of Chemical Engineers adopted this Code of Ethics to which it expects that the professional conduct of its members shall conform, and to which every applicant attests by signing his or her membership application. Members of the American Institute of Chemical Engineers shall uphold and advance the integrity, honor and dignity of the engineering profession by: being honest and impartial and serving with fidelity their employers, their clients, and the public; striving to increase the competence and prestige of the engineering profession; and using their knowledge and skill for the enhancement of human welfare. To achieve these goals, members shall:

1. Hold paramount the safety, health and welfare of the public and protect the environment in performance of their professional duties.
2. Formally advise their employers or clients (and consider further disclosure, if warranted) if they perceive that a consequence of their duties will adversely affect the present or future health or safety of their colleagues or the public.
3. Accept responsibility for their actions, seek and heed critical review of their work and offer objective criticism of the work of others.
4. Issue statements or present information only in an objective and truthful manner.
5. Act in professional matters for each employer or client as faithful agents or trustees, avoiding conflicts of interest and never breaching confidentiality.
6. Treat all colleagues and co-workers fairly and respectfully, recognizing their unique contributions and capabilities by fostering an environment of equity, diversity and inclusion.
7. Perform professional services only in areas of their competence.
8. Build their professional reputations on the merits of their services.
9. Continue their professional development throughout their careers, and provide opportunities for the professional development of those under their supervision.
10. Never tolerate harassment.
11. Conduct themselves in a fair, honorable and respectful manner.

[Read AIChE's Sexual Harassment Policy](#)

AICHE Diversity Statement:

Board approved **January 2021**: AIChE believes that all who wish to be a part of the chemical engineering community should have equal opportunity to pursue and achieve success. We work toward a better future for all — through our technical expertise; through how we inspire, engage, retain, and advance future talent; and through how we treat each other within and beyond the profession. Solutions to 21st century problems require innovation and creativity, which are accelerated through diverse teams and by ensuring that spaces are inclusive.

AIChE is committed to promoting a fair, just, and equitable profession and society. Groups that have faced discrimination continue to encounter challenges when entering into or participating in engineering and science professions. We encourage inclusion and intentional representation of people from diverse backgrounds and experiences because it is ethical and honorable, and it enhances the innovation and creativity necessary to find solutions to current and future challenges. We aim to eliminate disparities in treatment, racism, and any form of discrimination from our profession — recognizing that specialized strategies will be required for distinct groups, and that long-standing narratives will need to be combated. As members of our AIChE Community, we have an obligation to support and celebrate our advancement along an IDEAL path.

I (Inclusion) D (Diversity) E (Equity) A (Anti-Racism) L (Learning)

- ☐ We believe efforts to support and promote **inclusion** must narrow gaps and address root causes and manifestations of inequities.
- ☐ We hold forth a vision for a **diverse** profession in which discrimination and conscious bias are unwelcome and unacceptable and where **unconscious bias** is recognized and eliminated.
- ☐ AIChE will initiate and support proactive efforts to combat the influences of racism and bias as a key part of our **equity**, diversity and inclusion initiatives.
- ☐ We are committed to **anti-racism** and to understanding, addressing and mitigating the effects of racism within and beyond our profession through sharing of identified best practices.
- ☐ We believe that moving from understanding to action requires an openness and commitment to **learning**; through education we will build allyship.

To reach this IDEAL, AIChE is committed to creating, nurturing and expanding an inclusive, respectful and welcoming environment where people of all backgrounds and identities are valued and respected and can achieve their full potential, regardless of:

(i) race, ethnicity, or national origin; (ii) religious or spiritual practice, or absence thereof; (iii) sex, gender identity and expression, or sexual orientation; (iv) family or relationship structure; (v) any type of disability or perceived disability, past or present; (vi) age; (vii) any ascribed status or visible or invisible difference.

Through **intersectionality** and the awareness of shared difficulties, we can transcend our differences and achieve a better future for all.

Tentative Schedule:

	Topic	Assignment	Date
1	Introduction to the Chemical Engineering 101: Chair and Professor Lisa Axe Meet your Advisor Dr. Gordana Obuskovic	Develop a one page, double spaced, essay on how you desire to impact a National Academy of Engineering (NAE) Grand Challenge in your career due December 5, 2024. Prepare a 3-minute PPT on your career goal: http://www.engineeringchallenges.org <input type="checkbox"/> <i>Submit Career goals due September 5, 2024.</i>	September 5
2	Meet AIChE Student Chapter E-Board, Chapter Advisor Dr. Nellone Reid, and ChemE Car Team Advisor Dr. Roman Voronov	Attend four AIChE Student Chapter Meetings signed off (using the form provided in Canvas) by the AIChE Chapter E-Board by December 5, 2024	September 12
3	Career Development Services: Director, Undergraduate Engineering Co-op Ms. Nayelli Perez	Develop Resume and sign up for Handshake. Attend Career Fair.	September 19
4	Mentor-Mentee Program and Faculty Visit: Professor Kathleen McEnnis		September 26
5	Co-op Presentations and Panel I		October 3
6	Industry Panel I		October 10
7	Faculty Visit I: Assistant Professors Joshua Young and Mark Zhao	Develop a one page, double spaced, typed write up about the professor you met with and their current research activities with your name in the upper left: Due date November 7, 2024.	October 17
8	Faculty Visit III: Associate Chair for Undergraduate Study and Professor Ecevit Bilgili		October 24
9	BS/MS Program and Faculty Visit II: Associate Chair for Graduate Studies and Distinguished Professor Ed Dreizin	<input type="checkbox"/> Submit your Academic Plan that shows the courses (i.e., course number, title, and credits) you will take each semester beginning with your first semester at NJIT and needs to include at least one experiential learning experience: Due to your Advisor Dr. Obuskovic by October 31, 2024.	October 31

	Topic	Assignment	Date
10	Co-op Presentations and Panel II	<input type="checkbox"/> Submit one page, double spaced, and typed write up about the professor you met with and their current research activities with your name in the upper left: Due date November 7, 2024.	November 7
11	Industry Panel II		November 14
12	Faculty Visit IV: Professors Gennady and Xiaoyang Xu	<input type="checkbox"/> Submit draft presentation (hard copy of PPT).	November 21
13	Tuesday is a Thursday Schedule Feedback Session		November 26
14	Presentations and Feedback	<input type="checkbox"/> Submit a one page, double spaced, essay on how you will impact a National Academy of Engineering (NAE) Grand Challenge in your career due December 5, 2024. <input type="checkbox"/> Present your 3-minute PPT on your career goal. http://www.engineeringchallenges.org <input type="checkbox"/> Submit the form for attending four AIChE Meetings	December 5