

**BIET 396C-001/THEO 393/CHEM396-004:
The Complex Alchemy of the Sciences, Innovation, Bioethics, & Society
Tuesdays 4:15 pm – 6:45 pm in Mundelein 507**

INSTRUCTORS: Dr. Daniel P. Becker & Dr. Aana Marie Vigen

STUDENT HOURS & CONTACT INFO:

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Course Description: The United States has produced state-of-the-art medical and scientific breakthroughs including chemical and pharmacologic innovations that have transformed healthcare treatment, agriculture and what Americans consume both medicinally and nutritionally. The development of effective vaccines is just one prominent example of the life and death difference that medical research can make. Yet, U.S. healthcare and nutrition are also characterized by pernicious ethical problems including systemic racial-ethnic and socio-economic inequities, high drug costs, potent healthcare/pharmaceutical/food/agricultural lobbies, problematic research ethics, costly and complex drug/treatment approval processes, opioid overuse and addiction, etc.

This capstone course will reflect upon human responsibilities—as scientists and researchers, healthcare providers, ethicists, people of faith, and as members of society—to confront these realities. It will both discuss the evolution of several of these issues and also explore strategies for constructively addressing them. To do so, it will use the lenses of three distinct disciplines: Science, Christian Ethics, and Bioethics. It will tease out some of the complexities of various areas of scientific research, medical practices, and ethical questions that are integral to a robust and interdisciplinary understanding of the ethics of U.S. medical innovation, medical practice, and healthcare.

Course Learning Goals: By the end of the semester, students will have gained skills and understanding in three distinct areas:

- Gain factual knowledge (terminology, classifications, methods, & trends)
- Learn to *analyze* and *critically evaluate* ideas, arguments, & points of view
- Developing skill in expressing oneself orally and in writing

COVID-19 IN-PERSON SAFETY MEASURES: We ask your help in maintaining as safe an environment as possible.

Masks: University policy recommends masks in classrooms, but makes it optional. On the 1st day, we will solicit your anonymous input on whether or not you wish to be masked in the class. If anyone is immunocompromised or living with others who are, that is a very good reason to stay masked..

Reporting & Testing: If you are in close contact with someone who tests positive, or suspects they are positive, please test yourself as well. A close-contact exposure to COVID-19 is defined as having been in contact at a distance of less than 6 feet for more than 15 minutes. Fully vaccinated people with a known exposure to someone with suspected or confirmed COVID-19 should be tested 3-5 days after exposure, even if asymptomatic. For complete and current university protocols for reporting, testing, etc.: <https://www.luc.edu/coronavirus/positivediagnosisprotocol/>.

If one of the professors contracts COVID, that professor will participate via zoom until her/his quarantine ends.

Course Requirements: See assignment descriptions & due dates below. Additional details on assessment criteria for the poster project will be distributed in class well in advance of due dates.

1. Participation (10 pt)
2. 6 Responses to Class Materials, 2 typed pages each, double-spaced (6 x 20 pt/ea = 120 pt)
3. Response to guest speaker (20 pt)
4. Poster Project
 - a. Poster Project Bibliography and Topic Statement (10 pt)
 - b. Poster & Presentation (50 pt)
5. Self-eval. of participation in course & team-eval. of poster project (10 pt)
6. Final Reflection/Synthesis of Central Course Themes (20 pt)

Grading Scale:

94% A, 91% A-, 88% B+, 84% B, 82% B-, 78% C+, 74% C, 70% C-, 67% D+, 60% D, <60% F

Extra Credit: In light of student interests and events (on campus, nationally, etc.) we may assign a podcast, video or reading as an extra credit option. To earn extra credit, you will need to write a 2 page response to the event, speaker, video, podcast, reading. You may earn a max of **10 points** in doing so (you may earn fewer than 10 points on it as well). If you respond to an event you attend, the response is due 7 days after it. The due date for other options will be announced as opportunities are announced in class.

Grading Logistics & Criteria: We will post all grades to Sakai. We recommend you keep track of your grades via the Sakai gradebook so that you can periodically estimate your final grade as the semester progresses.

Brief Descriptions of Assignments/Assessment Criteria:

1. Participation: There are three components which go into the participation portion of the grade:

a) Attendance: Timely class attendance is expected. Students are responsible for **ALL** class notes, handouts & announcements. If you are late or miss class, you are responsible for picking up anything distributed, and you are also expected to get class notes from a classmate. If a personal situation, family crisis, or illness interrupts your ability to attend and/or prepare for class, contact us in a timely fashion. **Be proactive.**

b) Class Preparation: Being well-prepared means that you have read/listened to/viewed the assigned materials for the day and are ready to discuss them. It also means that you are ready to listen attentively to others and to reflect actively on class materials and discussion. If you “check out” during class, miss class, often arrive late, turn in assignments late without contacting us, fall asleep in class, surf the web/social media sites etc., we will assume that you are not taking the course very seriously. **Cell phones need to be turned off and put away—NO texting** during class. Such actions will negatively affect the participation grade. **Laptops are also to be put away unless you are using them to reference the readings. We prefer you take notes by hand, but you may use your laptop if necessary.**

c) In-class scribbles: We may ask you to write responses, thoughts, questions during class in dialogue with class materials. You will turn these in and they will help us assess your in-class engagement with course materials.

Finally, know that we value the participation not simply of those who “talk a lot,” but of those who demonstrate that they are attentively engaging the course materials—the more consistency here, the higher the participation grade. And this engagement can be done by challenging/disagreeing with, building on, or pointing out a specific detail from the readings and commenting OR by asking a question. **Students need to show that they are thoughtfully reflecting on the course materials.** Merely giving comments and opinions without this engagement is not as helpful.

2. Reading Responses: On **6 days** noted below on the schedule, compose a **2 page** (typed, double-spaced, 11- or 12-pt font, Times New Roman or Arial, 1” margins; **upload to Sakai**) response to the reading(s) assigned for the day. Begin by articulating one or two of the central points or the thesis of the reading(s). In the remaining portion, explain your response to the reading(s): What did you learn? What interested you? With what did you disagree? We may ask you specific questions to guide your response. The

objective of this assignment is to show in a concise manner that you read the assignment, understood it, and reflected upon it. If you misunderstood the main point(s) of the reading, or if response shows no solid engagement (makes us wonder if you really read the assignment) you will earn minimal points (depending on how far off you are); some points lost indicates that we can see that you read, but there are problems with your analysis/understanding of it; maximal points indicates sufficient understanding, engagement, and analysis.

3. Response to our Guest Speaker: On Tues., October 18th, Dr. Takunda Matose will be our guest speaker in class. **Compose a 2-page response** (typed, double-spaced, 11- or 12-pt font, Times New Roman or Arial, 1" margins; **upload to Sakai**). What did you learn from the speaker and assigned readings? What questions surfaced? Include specific examples from the content of the speaker's presentation and readings. It is **due by 11pm on Oct. 20th** (upload to Sakai).

4. Poster Project: **By 10/4**, you will form small groups (no fewer than 2 and no larger than 3 students) to explore a particular topic that is of mutual interest and that is related to this course. In class, we will discuss various topic options. **On 11/1**, as a group, you will **upload to Sakai ONE** group working bibliography and brief topic statement. The professors will give each group feedback on this to help you take next steps in research. **On 11/22**, groups will present their research to the class. Each group will have 10-13 minutes maximum to present its poster, followed by 5-7 minutes of constructive feedback. **On 12/6**, you will simultaneously give your poster presentations to outside students and faculty in the IC. The professors will evaluate this assignment based upon review of both your in-class presentations along with observations of your final work as demonstrated in your self evaluations (**due 12/8 @ 11 pm**).

Your work will be evaluated upon: the quality and depth of the research and understanding you present; the effectiveness and clarity of the organization/use of time; presentation creativity; how well you make connections between the scientific/medical/health topic and the ethical issues/questions/challenge it raises. **Additional assessment criteria will be given out by 11/1.** You will be graded individually and have the opportunity to assess your own work and that of your peers in your group.

5. Self & Team Evaluation: **By 11 pm on 12/8 (compose in or upload to Sakai):** Write a brief (1-2 paragraph max.) self-evaluation of your participation overall in the course along with your evaluation of your team's collaboration specifically on the poster project. You will earn the full points as long as you turn it in on time and reflect candidly/thoughtfully.

6. Final Reflection: Synthesis of Central Themes in the Course: In dialogue with **at least four different course readings/lectures** from the semester (any of your choosing) compose a **4-6 page paper (typed, double-spaced, 11- or 12-point font, 1" margins)** reflecting on central course themes related to race and racial inequality. Show concrete engagement with course readings and lectures.

Important caveat: For this essay, **do NOT repeat** the exact same content you already wrote for the guest speaker/reading responses! It should show new writing and synthesis! **Upload it to Sakai by 7pm on 12/13. Any assignment received past the deadline will NOT be accepted.**

For this final assignment, you may wish to ponder questions/topics such as: What you see as the ethics of medical/pharmaceutical research? What do we owe those whom we study? The professors may suggest additional prompts near the end of the course. Regardless of what you write, discuss how the course readings/lectures have helped you shape your response.

Course Readings/Materials: You are not required to purchase books for the class. All the required materials will be posted to Sakai. It is your responsibility to ensure that you access and read all the assigned readings **before each class** meeting.

Please bring to every class the selections from which the readings assigned for the week. If you choose not to print out the Sakai readings, that is OK; you may use your laptop to reference the readings. To prepare well for class, we urge you to **jot substantive notes**--short quotations, thoughts, questions, and page numbers (when available)--as you read/view/listen so that you may raise specific, substantive comments and questions on them in class.

Academic Honesty: Loyola University takes academic integrity extremely seriously. Simply put: don't cheat on exams and don't plagiarize written or spoken materials. **If you do, the Dean's office will be notified, and you will receive an "F" for the course. Moreover, academic misconduct is entered into LUC records, and will be disclosed to medical schools, state bar examiners, and others who have a legitimate reason to inquire.** The website that can provide you with LUC's specific details on this can be found here:

http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml.

We highly encourage you to become familiar with LUC's rules, procedures, and consequences for academic dishonesty. As a student of Loyola University Chicago, it is your responsibility to be familiar with these rules and consequences upon enrollment.

Disability Accommodations: We are happy to accommodate any and all students with documented disabilities. If you have a documented disability and wish to discuss academic accommodations, please contact the Student Accessibility Center (773-508-3700 and sac@luc.edu) ASAP. We must be presented with a note from the SAC office to provide accommodations to any student. Please see <http://www.luc.edu/sac/> for additional information.

Missed exams, classroom exercises, assignment, etc.: It is the responsibility of the student to contact us concerning missed exams, classroom exercises, and assignments. Make-up exams will only be scheduled, and late assignments will only be

accepted under the most exceptional of circumstances. These exceptional circumstances will be subjected to approval or denial by the professors, and documentation is required (doctor's note, etc.). Classroom exercises may be made up by the student during their own time, using their own effort.

Power points, study guides, and lecture notes: If you miss class, you are responsible for all class handouts, lecture notes, etc. Handouts and PowerPoint presentations will be posted on Sakai. We are also frequently asked to provide study guides before exams. If you come to class regularly and have all the lecture notes, you can easily make a study guide. In fact, **your lecture notes are your study guide.**

Incompletes: Incompletes are granted to students who have an exceptional circumstance. This includes but is not limited to an extended medical hospitalization or extreme family crisis. Also, the exceptional circumstance must be documented in the form of a signed and dated note from a medical professional, etc. In short, we rarely grant an incomplete.

Etiquette:

- * Please turn off or silence your cell phones, and refrain from outside conversations, tweeting, texting, internet surfing, etc. This is out of respect to both your fellow students and us.
- * Please make sure the classroom is disinfected, clean and tidy. Look around before you leave and dispose of any trash. Help make the world a little bit better than you found it!
- * This class will incorporate educational and thought-provoking classroom discussions; however, it's important to be considerate and respectful of ALL opinions. Let's follow the Golden Rule!
- * Please talk to us if you have problems, questions, or concerns about the course. We want you to fall in love with this class, not dread it. We're here to help. Really, we are.

Email: Drs. Becker & Vigen check email periodically throughout the day. Our final "email check" of the day is at 5pm. If you email after 5pm on any weekday, don't expect an answer until the next day. If you email on the weekend, don't expect an answer until the following Monday. This practice helps them maintain a work/life balance.

LUC Academic Calendar: Questions regarding add/drop/withdraw dates, final exams, holidays, etc. can be found here: www.luc.edu/academics/schedules

Advice: If you are struggling with anything related to this course, we strongly encourage you to talk to us. Sometimes a few extra minutes one-on-one can really make a difference! We expect you to work hard, study often, and pepper us with questions.

SCHEDULE OF TOPICS AND ASSIGNMENTS¹

PART ONE: GROUNDING IN SCIENCE & ETHICS: Distinct Ways of Knowing, Identifying Sources and Constructing Conceptual Frameworks

8/30 WEEK ONE

[DPB & AMV]

BEFORE CLASS (BC): Read Gawande, "[Is Health Care a Right](#)"
& View Sammour Ted Talk, "[Healthcare: is it a right or luxury?](#)"

1st Hour: Introductions to the Course & One Another

Getting to Know You & Syllabus Review

Why *This* Topic/How the Professors Came to It

2nd: **Science as a Way of Knowing: the Scientific Method** - [DPB]

9/6 WEEK TWO

[AMV leads]

BC: Read Vigen, "Conclusion," *God, Science, Sex, Gender* (Sakai)
& read Verhey, Ch. 2, *Reading the Bible in the Strange World of
Medicine* (Ch. 1 is Optional; Sakai)

1st: Overview Sources, Methods, Moral Theories & History in Bioethics

2nd: Religion as a Way of Knowing

DUE By Class Time: Response to Verhey & Vigen; Prompt: In dialogue with the readings, what roles, respectively, do human experience and religion play in ethical reflection? For example: Does religion have a place in bioethics? How trustworthy is the category of experience? What contributions can either/both make? What are the pitfalls of drawing upon religion and/or experience in the practice of (bio)ethics?

9/13 WEEK THREE

[DPB & AMV lead]

BC: Read "The Physicists: A Comedy in Two Acts" a play by Friedrich Durrenmatt (Sakai) & a [Guardian article on Glyphosate](#); An article on sustainability of GMOs (Harvard Business Review?)

GMO's, Sustainability or Frankenfoods

1st: Finish Bioethics Overview & Religion as a Way of Knowing

2nd: Exploring the Assumptions & Values of Medical & Scientific research

DUE by Thur. Sept. 15 @11 pm: Response to the Play & Discussion; Prompt: **TBA**

9/20 WEEK FOUR

[AMV leads]

BC: Read Oluo Ch. 1-2, *So You Want to Talk about Race* (Sakai)
Defining Social Location, Racism & Discussion Exercise

DUE By Class Time: Response to Oluo; Prompt: In dialogue with Oluo, what did you learn about the definition of racism that she prefers? What specifically did you learn from her illustrations and analysis? What questions did the reading raise for you?

¹This schedule is tentative & subject to change at the Professors' discretion.

PART TWO: KEY ISSUES IN MEDICAL TREATMENT, RESEARCH & INNOVATION

9/27 WEEK FIVE

[DPB leads]

BC: Read Abou-Gharbia, Pharma Criticisms and Tomorrow Vision & Ferrer, “Research as a Restorative Practice,” *Catholic Bioethics & Social Justice* (both on Sakai)

1st: Overview of the History of FDA & Drug Approval Process

2nd: Pharmaceutical Ethics & Profits

DUE By Class Time: Response to Abou-Gharbia & Ferrer; Prompt: **TBA**

10/4 WEEK SIX

[AMV leads]

BC: Read 2022 Key Facts Day on Health & Healthcare by Race & Ethnicity from the Kaiser Family Foundation:

[Coverage & Access](#)

[Outcomes & Health Status](#)

1st: Overview of Racial-Ethnic Health & Healthcare Disparities

2nd: View “In Sickness & In Health” from *Unnatural Causes* in class

DUE: Poster title and names of group members must be submitted today

10/11 WEEK SEVEN – Fall Break - NO CLASS!

10/18 WEEK EIGHT - Guest Speaker! Dr. Takunda Matose

BC: **TBA;** Possible reading assignments:

“[Why America’s Black Mothers and Babies are in a Life or Death Crisis](#)” *The New York Times Magazine*, Geronimus (2006) on Weathering; & [2020 Kaiser Family Foundation Report](#) on disparities in maternal and infant health.

1st: Guest Speaker

2nd: Time for small groups to work together on poster project

DUE by TH 10/20 @ 11pm: Response to the Guest Speaker & Readings

10/25 WEEK NINE

[DPB leads]

BC: **TBA**

Vaccines in History and in Times of COVID: a brief history of pandemics; smallpox, polio, & covid vaccines

11/1 WEEK TEN

[DPB & AMV lead]

BC: Read [Health at Every Size Approach](#), “[The Weight Game](#)” 2021 Scientific American; & “[The Racial Language of Fatphobia](#)” and watch Robert Lustig: The Bitter Truth <https://www.youtube.com/watch?v=dBnniua6-oM>

1st: Overview of Sugar, Fat, Perverse Subsidies

2nd: Discussion of Fatphobia & Health at Every Size

***NOTE:** *Mid-term grades communicated today—via Sakai

DUE: Small Group Poster Project Bibliography & Topic Statement

DUE by TH 11/3 @ 11pm: response to readings & discussion

11/8 WEEK ELEVEN

[AMV leads]

Watch *Picture a Scientist* in class & discuss

11/15 WEEK TWELVE

[DPB leads]

BC: Read In Defense of Animals by Peter Singer

1st: Animal Rights & Alternatives

2nd: Work on poster presentations/work

11/22 WEEK THIRTEEN

Poster Group Dry Run Presentations

There will be 4-5 poster groups presenting total. Each group of 2-3 students will have 10-13 minutes maximum to present its poster, followed by 5-7 minutes of constructive feedback. We will have a stopwatch, so plan to stick to these time limits!

11/29 WEEK FOURTEEN

[DPB leads]

BC: Watch The Shadow of the Thalidomide Tragedy | Retro Report | *The New York Times*. 12 min) <https://www.youtube.com/watch?v=41n3mDoVbvk>

Double-edged swords: controversial drugs - curse or cure?

12/6 WEEK FIFTEEN: Final Poster Presentations in the Information Commons

DUE By 12/8 @ 11 pm: Self evaluation and brief reflection on group work

Final Synthesis Essay Due by Tuesday 12/13 at 7pm (Upload to Sakai).

Warning: Unless you have a formal note from a doctor, etc., NO late submissions will be accepted!