



TPCB Chemical Biology Seminar Course 2021–2022

Course Director

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Schedule

Journal Club Thurs 1:30p – 3:00p (unless otherwise noted) Hybrid TBD
Seminars as scheduled (mostly Mon or Tue 4 pm) as scheduled

Overview

Numerous chemical biology seminars in the Tri-Institutional Research Program provide students with exposure to current research topics by leading scientists in the field. TPCB students in the first and second years are required to attend the seminars listed below and to participate in a student-led journal club prior to each seminar.

Two students will lead each journal club and should contact the seminar speaker directly approximately 2-3 weeks before the journal club meeting to request articles that will likely be presented in the seminar. Selections must be approved by the Course Director at least one week prior to the journal club meeting, at which point the presenters will email the articles to the class. One student will present an introduction to the speaker and research area, generally structured around a review article (which need not be written by the speaker). The other student will present a relevant primary research article authored by the speaker. The students leading the journal club will give PowerPoint presentations to stimulate discussion about the research topic and article. The students should work together to create cohesive, non-overlapping presentations that are accessible to a broad audience of chemical biology students.

The overview presentation (≈30 minutes plus questions) should cover:

- a) Introduction of speaker and list of other key labs working in research area
- b) Background and significance of research area
- c) Summary of historical progression of research area, including seminal advances

The research article presentation (≈30 minutes plus questions) should cover:

- a) Key experimental approaches and techniques used in the paper
- b) Critical analysis of data and interpretations (discussion of each figure)
- c) Additional and/or future experiments to be considered
- d) Analysis of Rigor and Reproducibility of the experiments (see below)
- e) Review of Responsible Conduct of Research considerations (see below)

See last page of this syllabus for more advice on preparing presentations.

Rigor and Reproducibility

The research article presentation should analyze whether or not the experiments were conducted in a rigorous and reproducible manner. The application of rigor ensures robust and unbiased experimental design, methodology, analysis, interpretation, and reporting of results. When a result can be reproduced by multiple scientists, it validates the original results and readiness to progress to the next phase of research.

Potential considerations include, but are not limited to:

- a) Are suitable positive and negative controls used?
- b) Are appropriate statistical analyses applied to the data?
- c) Are chemical reagents characterized sufficiently and appropriate protocols provided?
- d) Is the provenance of biological reagents described sufficiently?
- e) In animal studies, are biological variables such as sex considered appropriately?

This analysis should be provided throughout the presentation, with a separate summary slide at the end of the presentation.

See also: <https://www.nih.gov/research-training/rigor-reproducibility>

Responsible Conduct of Research

The review article presentation should identify any conflicts of interest that the speaker may have, such as roles or equity holdings in for-profit entities, appointments at foreign institutions, and whether or not this information is accessible on the speaker's website.

The research article presentation should review whether or not the work was conducted responsibly, according to established professional norms and ethical principles.

Potential considerations include, but are not limited to:

- a) Was prior work by other labs appropriately cited?
- b) Was electronic manipulation of any images such as gels described clearly?
- c) Were personal, professional, and financial conflicts of interest disclosed?
- d) Are suitable laboratory safety, vertebrate animal, and human subject protocols used?
- e) Do the research and results have any ethical implications for scientists and society?

These analyses should be presented in summary slides at the end of the presentations.

See: <https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training>

Grading

Pass/Fail based on required attendance at seminars, journal club presentations, and journal club participation when not presenting. Students are particularly encouraged to ask questions of the speaker during in the question & answer period after each seminar.

Students must notify the Course Director in advance of any absences from journal club and seminars and a makeup assignment must be completed within one week of the seminar date, consisting of a one-page written summary and critical analysis of the primary research paper presented in Journal Club.

Schedule

For complete seminar schedules, from which these seminars are selected, see:

Sanders Tri-Institutional Chemical Biology Seminar Series
Tri-Institutional Structural Biology Seminar Series
MSK Molecular Pharmacology & Chemical Biology Seminar Series
RU Evin Chemical Biology Seminar Series
MSK Jack J. Fox Lectureship (annual)
MSK David Y. Gin Symposium (biannual, odd years)

Please register in advance for virtual seminars if required.

All Journal Club meetings will be held in person; as necessary, a Zoom option will be provided at this address:

<https://meetmsk.zoom.us/j/95556278338?pwd=dDhNbXI0VENJbDgzK01ISm13V3V3QT09>

Meeting ID: 955 5627 8338

Passcode: 638342

Seminar	Journal Club		
Mo 10/11/21 4:00-5:00 pm MSK tbd (MP&ChB)	Monica Raj, PhD Emory University <i>Connecting Complex Natural Product with Undruggable Cancer Target by Total Synthesis and Chemoproteomics</i>	<i>seminar only</i>	<i>date to be rescheduled</i>
Tu 10/26/21 4:00-5:00 pm MSK ZRC Aud (MP&ChB)	Mingji Dai, PhD Purdue University <i>Connecting Complex Natural Product with Undruggable Cancer Target by Total Synthesis and Chemoproteomics</i>	<i>seminar only</i>	
Mo 11/1/21 4:00-5:00 pm MSK ZRC Aud (Sanders)	Herman Sintim, PhD Purdue University <i>New-generation Selective Inhibitors for Secondary Mutated Protein Kinases</i>	Th 10/28/21 1:30–3:00pm ZRC 2170	Review: VarnBuhler Paper: Christodolou-Rubalcava <i>Remote: Cahir</i>
Tu 11/9/21 4:00-5:00 pm MSK Zoom (MP&ChB)	Mark Dawson, PhD Peter MacCallum Cancer Centre <i>Cancer Epigenetics: Concepts, Challenges and Therapeutic Opportunities</i>	<i>seminar only</i>	
Tu 12/7/21 4:00-5:00 pm MSK ZRC Aud (MP&ChB)	Eric Strieter, PhD U. Massachusetts, Amherst <i>Uncovering the Cryptic Activity of a Proteasome-Associated Deubiquitinase</i>	Th 12/2/21 1:30–3:00pm ZRC 2170	Review: Hiotis Paper: Rasmussen <i>Remote: Lemmon</i>

Seminar		Journal Club	
Mo 12/13/21 4:00-5:00 pm MSK ZRC Aud (Sanders)	Karin Akinsanya, PhD Schrödinger <i>Computation in Discovery & Development: Does it Help Advance Clinical Hypothesis Testing?</i>	Th 10/14/21 1:30–3:00pm ZRC 2170	Review: Lemmon Paper: Cahir <i>Remote: Christodolou -Rubalcava</i>
Tu 3/1/22 4:00-5:00 pm MSK tbd (MP&ChB)	Jessie (Yan) Zhang, PhD University of Texas, Austin <i>Cross-talks of Phosphorylation on RNA Polymerase II Guarantee Accurate Transcription</i>	<i>seminar only</i>	
Tu 3/15/22 4:00-5:00 pm MSK tbd (MP&ChB)	Christina Woo, PhD Harvard University <i>Target Identification with Photo-Affinity Labeling</i>	Th 3/10/22 1:30–3:00pm ZRC 2170	Review: Walker Paper: Warren <i>Remote: Hiotis</i>
Mo 3/21/22 4:00-5:00 pm MSK tbd (Sanders)	Elizabeth Rhoades, PhD University of Pennsylvania <i>Functional Mechanisms of Dysfunctional Proteins</i>	Th 3/17/22 1:30–3:00pm ZRC 2170	Review: Jordan Paper: Nieves <i>Remote: VarnBuhler</i>
Mo 4/18/22 4:00-5:00 pm MSK tbd (Sanders)	Lynette Cegelski, PhD Stanford University <i>Discovery and New Chemistry at the Bacterial Cell Surface</i>	Th 4/14/22 1:30–3:00pm ZRC 2170	Review: Ramsey Paper: Tornow <i>Remote: Zhang</i>
Tu 4/26/22 4:00-5:00 pm MSK tbd (MP&ChB)	Amy Palmer, PhD University of Colorado, Boulder <i>Fluorescent Tools for Live Cell Imaging</i>	Th 4/21/22 1:30–3:00pm ZRC 2170	Review: Hu Paper: Zhang <i>Remote: Rasmussen</i>
Mo 5/16/22 4:00-5:00 pm MSK tbd (Sanders)	Jun O. Liu, PhD Johns Hopkins University <i>Rapamycin-inspired Macrocycles as Novel Chemical Probes and Drug Leads</i>	Th 5/12/22 1:30–3:00pm ZRC 2170	Review: Wu Paper: Xiao <i>Remote: Hu</i>
Tu 5/24/22 4:00-5:00 pm MSK tbd (MP&ChB)	Jeremy Baskin, PhD Cornell University <i>Chemical Tools that IMPACT Lipid Signaling</i>	Th 5/19/22 1:30–3:00pm ZRC 2170	Review: Yardeny Paper: Zhou <i>Remote: Jordan</i>
Mo 6/27/22 4:00-5:00 pm MSK tbd (Sanders)	Peng Chen, PhD Peking University <i>Biorthogonal Cleavage Chemistry-enabled Spatial-Temporal Proteomics</i>	<i>seminar only</i>	

General Tips for PowerPoint Slide Design

- Depending on how much material you put on each slide, you should have absolutely no more than 25 slides (1 min/slide), and ideally 12–15 slides (1–2 min/slide)
- Include an outline slide at the beginning of the talk and/or a summary slide at the end
- Use descriptive slide titles that summarize the take-home message of each slide – this can also be accomplished using subtitles, headings, or summary bullet points
- Develop and use a clean, consistent layout for all slides, titles, text, and figures
- Use slide master to number all slides in the lower right or left corner for easy reference
- Use color, font formatting, and animation judiciously to emphasize key items
- Avoid layouts that are overly sparse (white space) or overly dense (no spaces)
- Use at least 14-point font on slides (12-point is acceptable for references)
- Use hanging indents for bullet lists; use concise phrases instead of long paragraphs
- Make sure all graphics are clear and readable; redraw structures if necessary
- Do not use the ACS format for ChemDraw structures – for a PowerPoint presentation, structures should be 25–50% larger, with thicker lines, and larger atom labels
- Use regular, 120° bond angles where appropriate for ChemDraw structures

General Tips for Oral Presentations

- Stand up for all presentations; command the attention of the room
- Rehearse your presentation several times prior to your seminar; shorter talks should be rehearsed more times to ensure that you adhere to time limits
- Avoid reciting from notes or text from your slides; memorize your talk and use information on the slides to cue your verbal statements
- Avoid colloquialisms such as: “you know”, “I mean”, “like”, “um”, “ah”, “sort of”, etc.
- Use a pointer and guide the audience step-by-step through each slide
- Speak authoritatively and confidently - avoid raising the inflection of your voice at the ends of phrases and sentences, as if you are unsure or asking a question?
- Be dynamic in your oral presentation and convey your enthusiasm to the audience

Key Online Resources

- The Craft of Scientific Presentations – Assertion-Evidence Approach (Springer)
<http://www.writing.engr.psu.edu/csp.html>
- Communicating Science: Giving Talks (Burroughs Wellcome Fund)
<http://www.bwfund.org/career-tools/communicating-science-giving-talks>
- Designing Effective Scientific Presentations (Susan McConnell, PhD)
<http://www.ibiology.org/ibioseminars/techniques/susan-mcconnell-part-1.html>