



Barnard Biology Research Symposium 2022

<https://biology.barnard.edu/biology-events/symposium-program-2022>

Tuesday, May 3rd | 9:15 am to 4:00 pm

Department of Biological Sciences

biology.barnard.edu

212.854.2437

Barnard Biology Research Symposium

May 3, 2022 | Diana Center Event Oval & Zoom | 9:15 am to 4:00 pm

We are delighted to welcome you to the annual Barnard Biology Research Symposium! This symposium is dedicated to showcasing and celebrating the exemplary work of our Guided Research & Seminar and Senior Thesis Research & Seminar students. Under the guidance of their dedicated mentors, both at Barnard and throughout New York City, our students have spent the 2021–2022 academic year working independently on projects ranging from those in cell biology to bacterial antibiotic resistance to clinical trials.

Today, we feature the meticulous and painstaking work of our presenters and congratulate them and their mentors on their steadfast commitment to their research! We hope today's presentations and posters will inspire the next generation of Barnard Biology majors to follow boldly in their footsteps in the pursuit of knowledge across biological disciplines.

We encourage you to join us today for both sessions, the first of which will feature presentations by our Senior Thesis Research & Seminar students from 9:15 am to 1:15 pm, followed by the Guided Research & Seminar poster session from 2:30 pm to 4:00 pm.

Warmly,

The Barnard College Department of Biological Sciences

Note: A brief How-to-use Zoom guide is provided on pages 13–19 of this program. Please make sure you have updated to the most recent version of Zoom. This will be important for the poster session. On the day of the event, this program will be available as a webpage ([link](#)).

Masks will be required throughout the duration of the event. Non BC/CU affiliates will need to fill out an [attestation form](#) the morning of the event in order to attend. No vaccine exemptions are allowable for outside attendees.

Schedule of Events

9:15 am to 9:30 am — Opening Remarks by Professors Jessica Goldstein, JJ Miranda, and Jordan Balaban

SESSION ONE

9:30 am to 11:15 am — Senior Thesis Research & Seminar Student Presentations

BREAK

11:15 am to 11:30 am — Break and Mingling

SESSION ONE (continued)

11:30 am to 1:15 pm — Senior Thesis Research & Seminar Student Presentations

BREAK

1:15 pm to 2:30 pm — Lunch Break

SESSION TWO

2:30 pm to 2:45 pm — Opening Remarks & Student Poster Oral Abstracts

2:45 pm to 4:00 pm — Guided Research & Seminar Student Poster Session

4:00 pm — Closing Remarks

A detailed schedule—including presenters, project titles, and the event Zoom link—is provided on the following pages. Research mentors and their respective institutional affiliations are listed below each title. On the day of the event, this program will be available as a webpage ([link](#)).



Senior Thesis Research & Seminar (2022)

(From left to right.) Top: Olivia Eliopoulos, Alyssa Semmelman, Karolina Szenkiel, Emma Breber, Abi Spingarn, Rachel Cho, Magdalene Pernambuco, Shaila Fye, & Theyjasvi Ashok.

Bottom: Sarah Braner, Jessica Wang, & Vivian Zhao.

Not Pictured: Andrea Kubas-Meyer & Gabriella Chefitz.

Biology majors enroll in Senior Thesis Research & Seminar to satisfy their senior capstone requirement for the major. This yearlong course requires students to work on independent research projects under the guidance of their mentors. It culminates in both a scientific paper and a 15-minute research talk presented in today's first session.

Session One: Senior Thesis Research & Seminar Presentations

Zoom Meeting ID: 946 8346 6789 | Passcode: 905913 ([Zoom Link](#))

As you join the meeting, if you are on Zoom, please ensure that your microphone is on Mute (see pg. 17). Questions at the end of a presentation will be moderated by Professors Goldstein, Miranda, and Balaban in person and in the chat (see pg. 17–18); on Zoom, please post your questions by sending them to ‘Everyone’, which is the default on Zoom. To clap at the end of a presentation, use the clap emoji under the reactions button (see pg. 17).

9:30 am Emma Breber

***Hoxa5* participates in the regulation of epaxial myofiber diameter and type in a mouse model**

Jennifer H. Mansfield (Department of Biological Sciences, Barnard College)

9:45 am Shaila Fye

TreeTracer: A computational tool to analyze context dependent substitutions in a phylogenetic framework

Brian R. Morton (Department of Biological Sciences, Barnard College)

10:00 am Karolina Szenkiel

Investigating the role of bacterial metabolism in antibiotic resistance

Allison J. Lopatkin (Department of Biological Sciences, Barnard College)

10:15 am Vivian Zhao

Investigating CA1-CA3 functional connectivity in spatial memory encoding

Attila Losonczy and Tristan Geiller (Mortimer B. Zuckerman Mind Brain Behavior Institute, Columbia University)

10:30 am Theyjasvi Ashok

The effect of *Hoxa5* loss of function on *Hox* cluster gene expression

Jennifer H. Mansfield (Department of Biological Sciences, Barnard College)

10:45 am Abi Spingarn

Narrowing Down the Cellular Components that Mediate the Cephalic-Phase Insulin Release in Mice

John I. Glendinning (Department of Biological Sciences, Barnard College)

11:00 am Jessica Wang

Exploring genetic features that define recipient capabilities in *Klebsiella pneumoniae*

Allison J. Lopatkin (Department of Biological Sciences, Barnard College)

11:15 am Break

11:30 am Olivia Eliopoulos

The impact of male fitness components on sexual conflict

Alison Pischedda (Department of Biological Sciences, Barnard College)

11:45 am Gabriella Chefitz

Uncovering transcriptional crosstalk between two cancer-causing viruses

JJ Miranda (Department of Biological Sciences, Barnard College)

12:00 pm Alyssa Semmelman

Mutations in the phosphatase SHP2 affect Ras phosphorylation state

Neel Shah (Department of Chemistry, Columbia University) and Anne Elise van Vlimmeren (Department of Biological Sciences, Columbia University)

12:15 pm Andrea Kubas-Meyer

Elucidating the effects of type I IFN α treatment on CD34+ progenitor cells in CALR mutated myeloproliferative neoplasms via single cell multi-omics

Anna S. Nam (Weill Cornell Medicine; New York Presbyterian Hospital)

12:30 pm Sarah Braner

Detecting Dengue Virus in Wastewater

JJ Miranda (Department of Biological Sciences, Barnard College)

12:45 pm Rachel Cho

Examining the effects of imidacloprid on cell stress responses associated with proteostasis and metabolism in *Apis mellifera*

Jonathan Snow (Department of Biological Sciences, Barnard College)

1:00 pm Magdalene Pernambuco

Recharacterizing hothead and hothead-like mutations in *Arabidopsis thaliana*

Hilary S. Callahan (Department of Biological Sciences, Barnard College)



Guided Research & Seminar (2022)

(From left to right.) Top: Christina Lin, Mariel Correa-Maynard, Hibah Vora, Liliana Seoror, Shivi Dua, Ariana Carranza Cedrón, Parker Parrella, & Annie Rozenblyum.

Bottom: Ligaya Lim, Jackie Balestrieri, Annabelle B. Elikan, Natalie L. Lovinger, & Janani Varadarajan.

Not Pictured: Cindy Cao & Aanya Singh.

Biology majors enroll in Guided Research & Seminar to satisfy the upper-level biology labs required for the major. This yearlong course requires students to work on independent research projects under the guidance of their mentors. It culminates in both a scientific paper and the poster presented in today's second session.

Session Two: Guided Research & Seminar Poster Session

Student Poster Session Welcome & Abstracts (2:30 to 2:45 pm)

Zoom Meeting ID: 946 8346 6789 | Passcode: 905913 ([Zoom Link](#))

Student Poster Sessions (2:45 to 4:00 pm)

Poster 1 Jackie Balestrieri

Correlation between plasmid conjugation rates in *Klebsiella pneumoniae* clinical isolates

Allison J. Lopatkin (Department of Biological Sciences, Barnard College)

Poster 2 Cindy Cao

Characterizing homeotic transformations of UNC-42/PROP1 neurons in the nematode *Caenorhabditis elegans*

Oliver Hobert and Yasmin H. Ramadan (Department of Biological Sciences, Columbia University)

Poster 3 Ariana Carranza Cedrón

Optimizing protein correlation profiling to study the composition of molecular complexes

Marko Jovanovic and Ella Doron-Mandel (Department of Biological Sciences, Columbia University)

Poster 4 Mariel Correa-Maynard

The sensory cues of male mate choice: do male fruit flies use vision and hearing to assess female body size

Alison Pischedda (Department of Biological Sciences, Barnard College)

Poster 5 Shivi Dua

Role of Translesion Synthesis and Nucleotide Metabolism in BRCA1 Deficient Breast Cancer Cells

Alberto Ciccia and Angelo Taglialatela (Department of Genetics and Development, Columbia University Irving Medical Center)

Poster 6 Annabelle B. Elikan

Using dsRNA to Knockdown *Nosema ceranae* Genes and Treat Infection in *Apis mellifera*

Jonathan Snow (Department of Biological Sciences, Barnard College)

Poster 7 Ligaya Lim

Chorda tympani nerve is not necessary for eliciting cephalic-phase insulin release in mice

John I. Glendinning (Department of Biological Sciences, Barnard College)

Poster 8 Christina Lin

Role of visual features in evoking aggressive gill flare behavior in *Betta splendens*

Andrés Bendesky and Claire Everett (Mortimer B. Zuckerman Mind Brain Behavior Institute, Columbia University)

Poster 9 Natalie L. Lovinger

Characterizing the effects of stress response on protein synthesis in honey bees

Jonathan Snow (Department of Biological Sciences, Barnard College)

Poster 10 Parker Parrella

Characterizing bleomycin as a treatment for *Nosema ceranae* infection in honey bees

Jonathan Snow (Department of Biological Sciences, Barnard College)

Poster 11 Annie Rozenblyum

Myeloid-Specific Overexpression of Lipa Promotes Atherosclerosis

Hanrui Zhang and Fang Li (Seymour, Paul and Gloria Milstein Division of Cardiology, Department of Medicine, Columbia University Irving Medical Center)

Poster 12 Liliana Seoror

Screening for benomyl resistance and sensitivity in *Caenorhabditis elegans* using the Million Mutation Project

Martin Chalfie and Zhenhao Guo (Department of Biological Sciences, Columbia University)

Poster 13 Aanya Singh

The effect of light on the primary metabolism in *Pseudomonas aeruginosa*

Lars Dietrich and Kelly N. Eckart (Department of Biological Sciences, Columbia University)

Poster 14 Janani Varadarajan

Contribution of Ang2-mediated vascular destabilization to liver metastasis and immunosuppression in pancreatic neuroendocrine tumors

Minah Kim and Alessandra Leong (Department of Pathology and Cell Biology, Columbia University Irving Medical Center)

Poster 15 Hibah Vora

Identifying copy numbers for rheumatoid arthritis linkage in whole genome data of a founder population

Itsik Pe'er (Department of Computer Science, The Fu Foundation School of Engineering and Applied Science, Columbia University)

Closing Remarks (4:00 pm)

Zoom: Tips and How-to-Use

Downloading Zoom (free) for Desktop and Cell Phone or Tablet

Before the date of this symposium, download Zoom for Mac or PC by visiting <https://zoom.us/download>.

If you will be joining by cell phone or tablet, visit the Google Play Store/Apple App Store and search “Zoom” to download and install. You can also download the app at the following links:

Google Play Store:

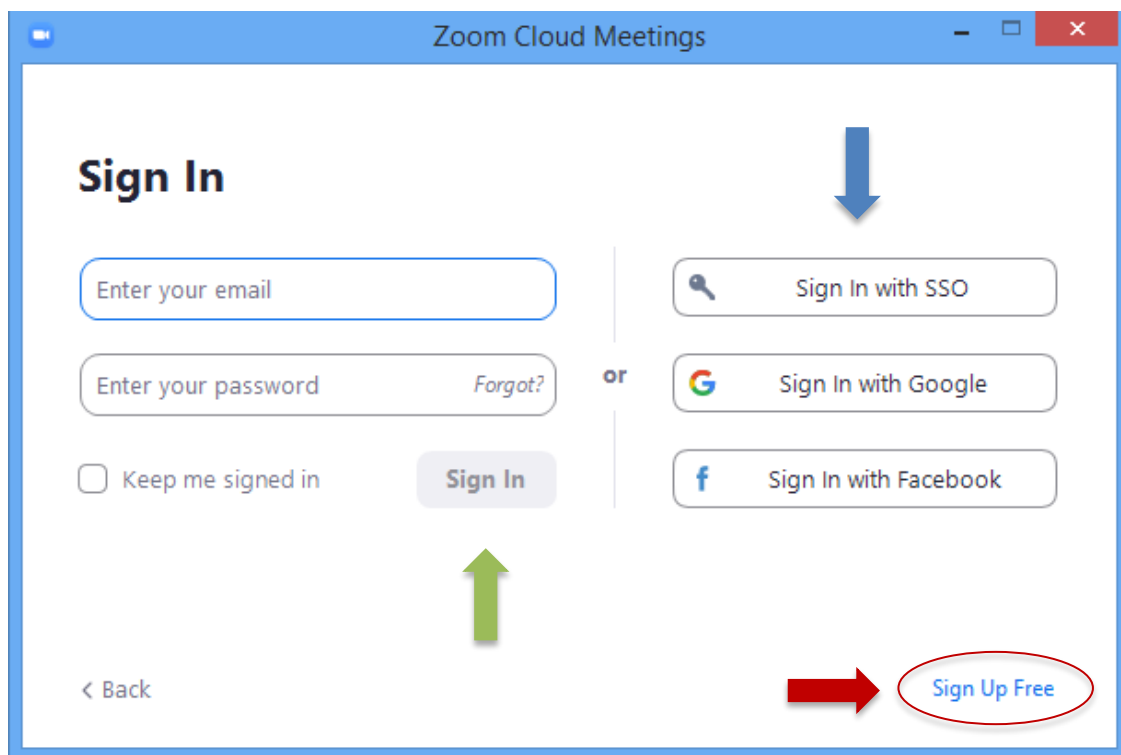
<https://play.google.com/store/apps/details?id=us.zoom.videomeetings>

Apple App Store:

<https://apps.apple.com/us/app/id546505307>

Account Set Up & Sign In

Launch the Zoom app. If this is your first Zoom meeting, you’ll need to sign up for a Zoom account (red arrow). Otherwise, enter your account credentials (green arrow).



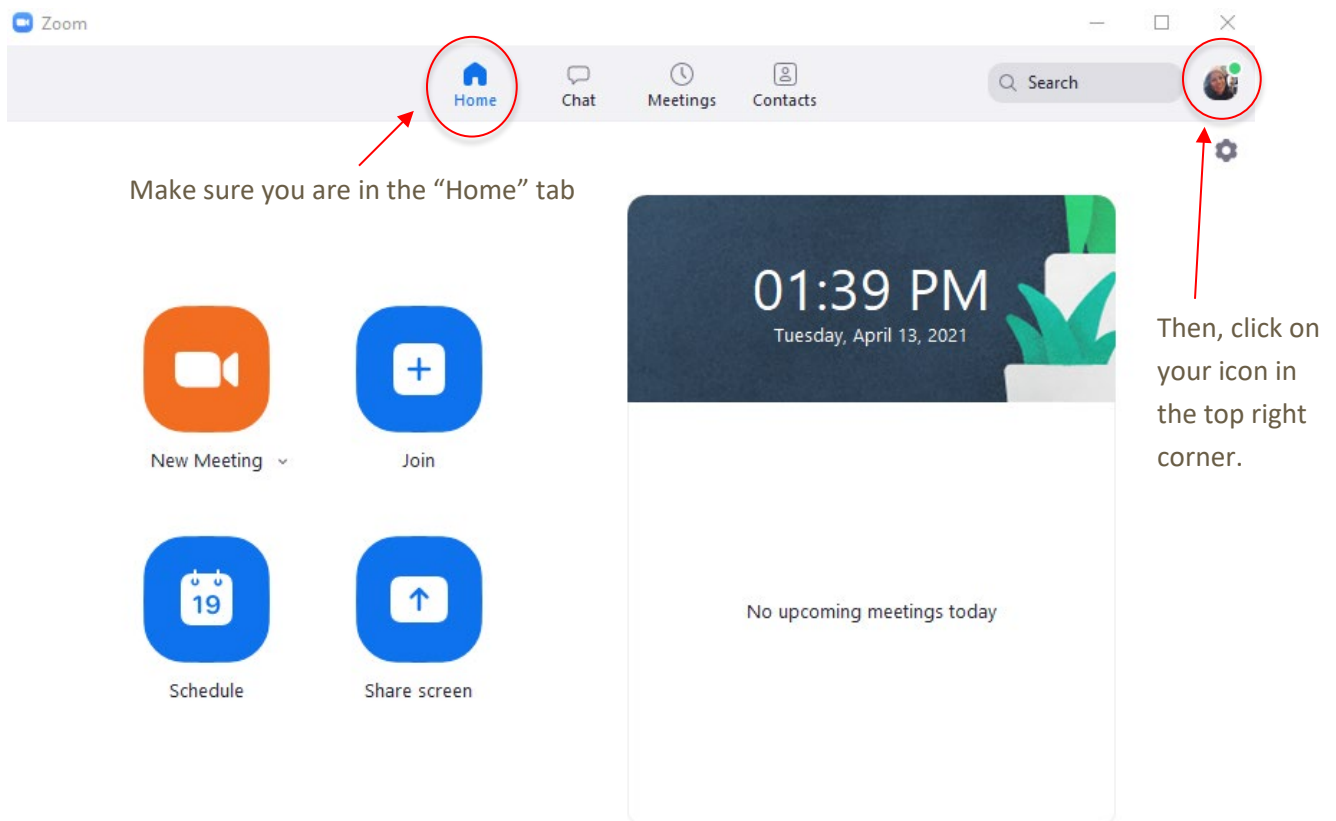
If you have a Gmail or Facebook account, you can sign up using those credentials (blue arrow).

If you are signing up for an account, follow the instructions at <https://zoom.us/signup>. Once you have created your account, sign in following the instructions above.

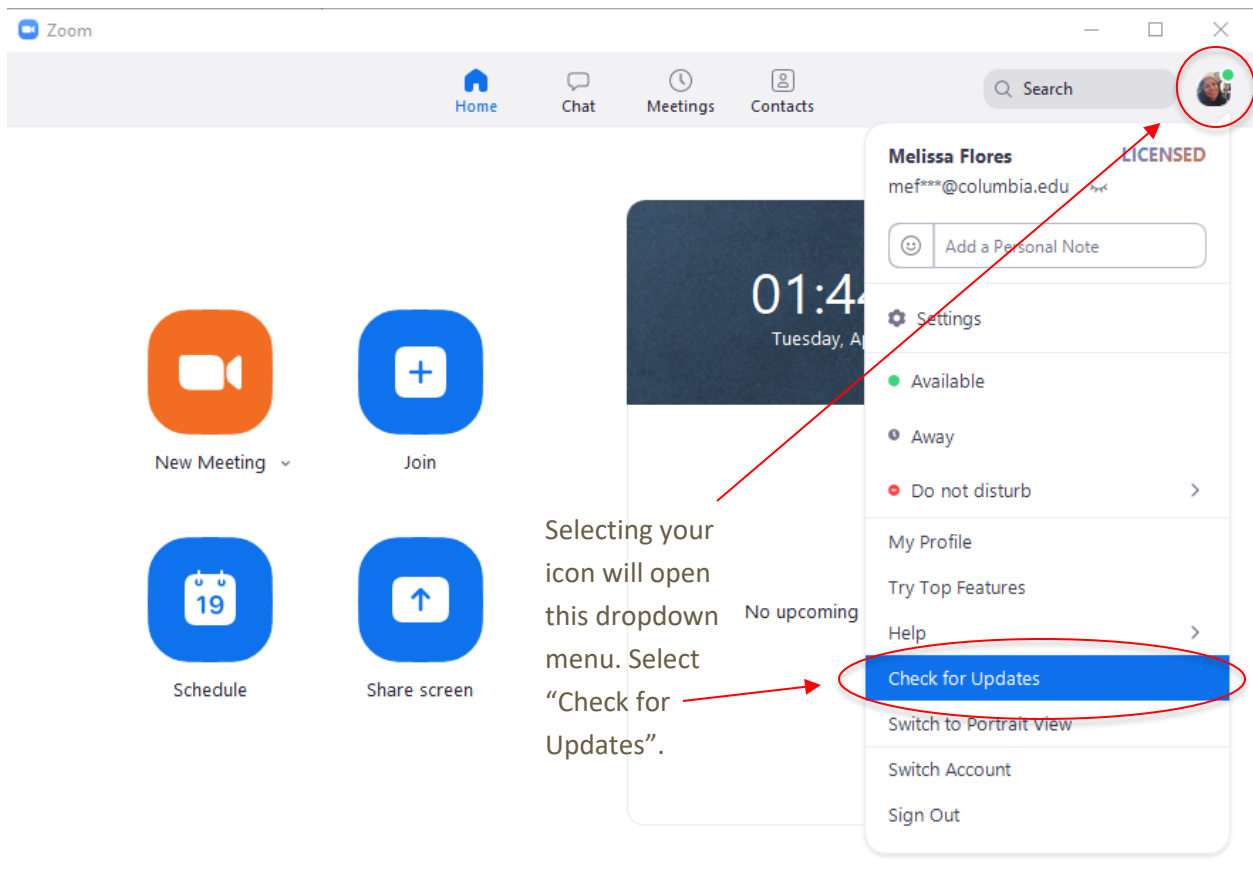
Updating Your Zoom Account

In order to use the self-selecting breakout room feature used during the symposium's poster sessions, you'll need to ensure that you've updated your Zoom account to the most recent version BEFORE joining the meeting.

First, open your Zoom app. Sign in using the instructions provided above. Now, under the "Home" tab, click on your icon in the top right corner.



Selecting your icon will open a dropdown menu. Select "Check for Updates" (see image on the following page).



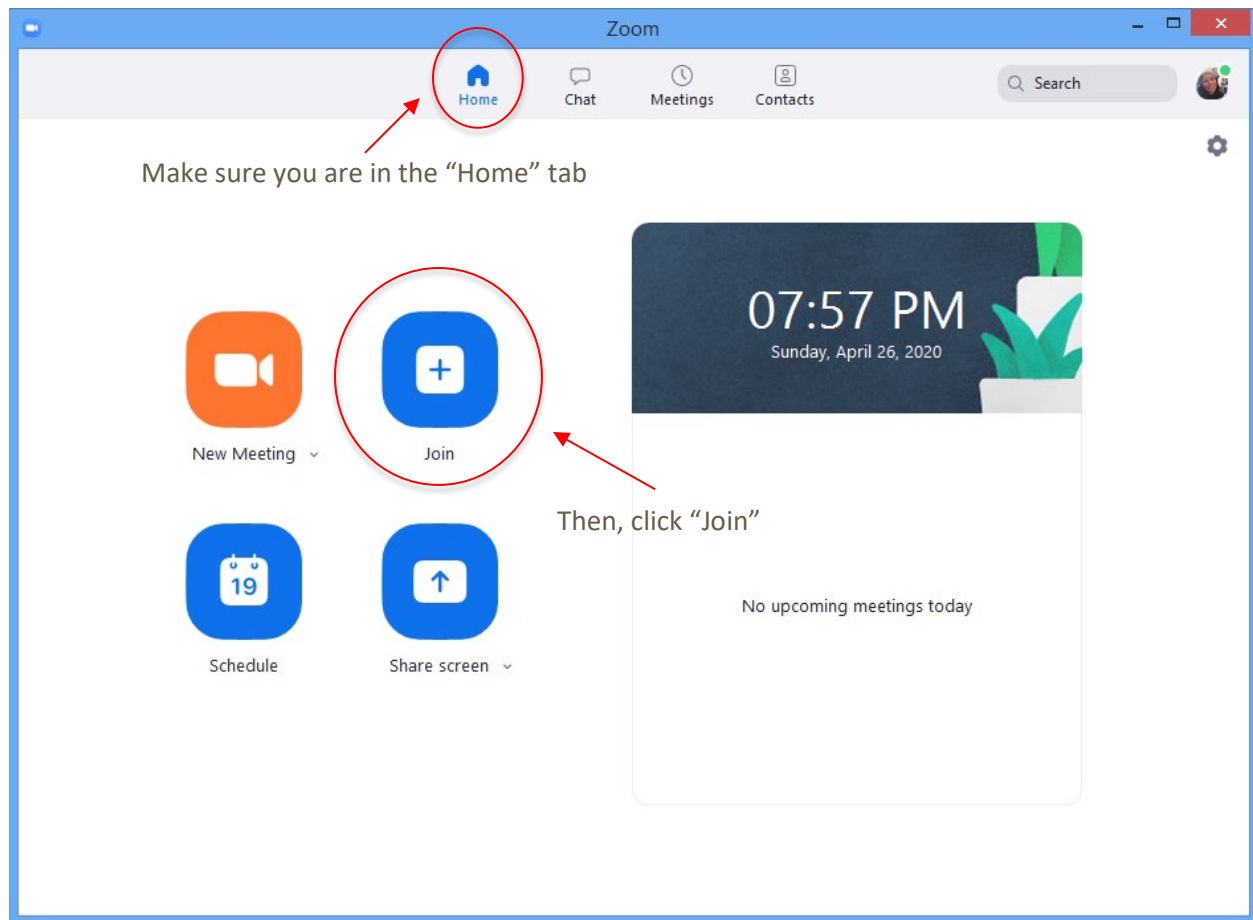
After selecting "Check for Updates", if a newer version of Zoom is available, selecting "Update" will prompt Zoom to download it and install it. Zoom will close, then re-launch. Once you have updated your version of Zoom, you can join the symposium meeting, following the instructions provided below.



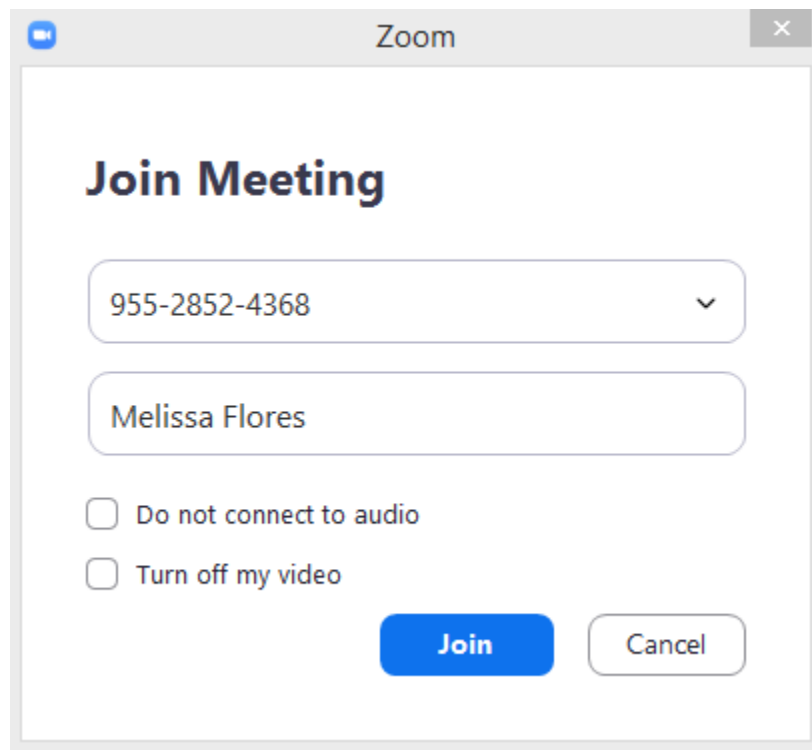
To update the Zoom mobile app (iOS or Android), go to the Google Play Store or Apple App Store on your device. Search "Zoom Cloud Meetings" and open the application. If an update is available, select "Update". Then, open the Zoom app and join the symposium meeting.

Joining a Meeting

All of this symposium's talks and posters will be hosted on Zoom. For the thesis talks, poster abstracts, and poster sessions, you'll join the "main" Zoom Meeting either by clicking the link provided in the program above, or by "joining" the meeting using the meeting ID provided. Once you have signed in, under the "Home" tab, click "Join".



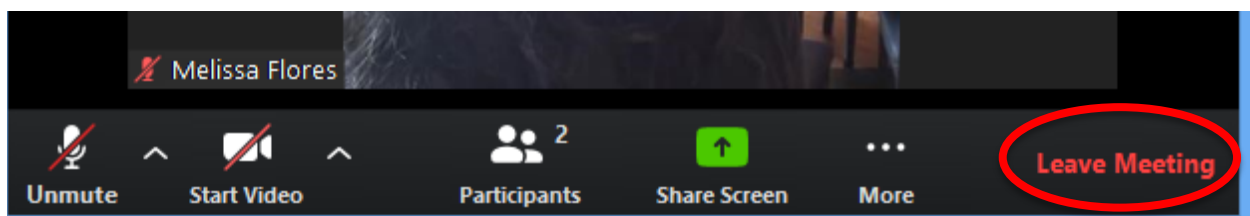
Type in the meeting ID provided in this program and your name as you want it to appear. If you wish to disconnect your camera, select the box that says “turn off my video”. Then press “Join” (it’ll prompt you for the passcode once you “Join”).



If you are using a tablet or phone, you will find the “Join” button under the “Meet & Chat” tab after logging in using the Zoom app. You’ll type in the Meeting ID, your name as you want it to appear, and toggle “Turn Off My Video” if you do not want your camera on.

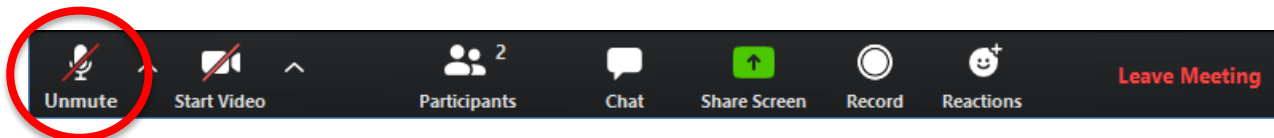
Leaving a Meeting

To leave a session, simply press “Leave Meeting” in the lower right-hand corner of your screen. On phone or tablet, this red button may be in the top right-hand corner.



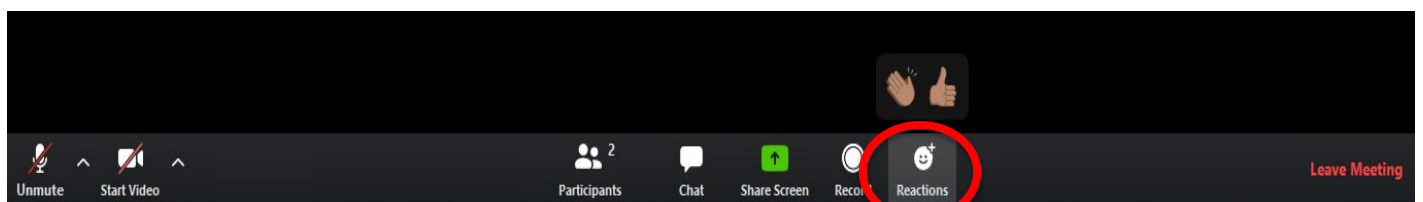
Best Practices & Tips

In general, it is a good idea to make sure your microphone is on mute when joining a meeting. A host will likely have this setting on by default. This way, any background noise on your end will not disrupt the meeting. To turn your microphone off, select the microphone icon in the bottom left of your screen. You should now see it as crossed out. To unmute yourself, simply click that icon again. You'll no longer see the mic as crossed out.

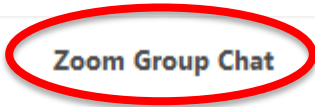
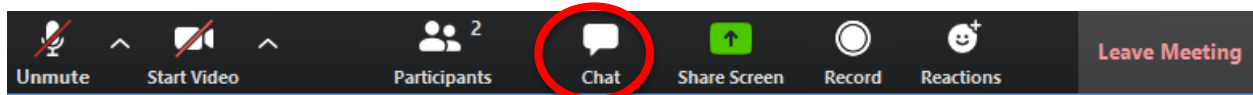


You can turn your camera on and off by selecting the video icon to the right of the microphone icon.

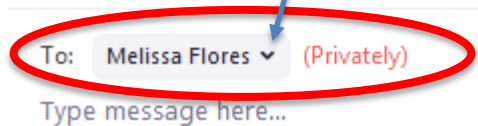
After a presentation, you can “clap” for a participant by selecting the “Reactions” button on your control bar and selecting the clapping hands icon. This is to the left of the Leave Meeting button.



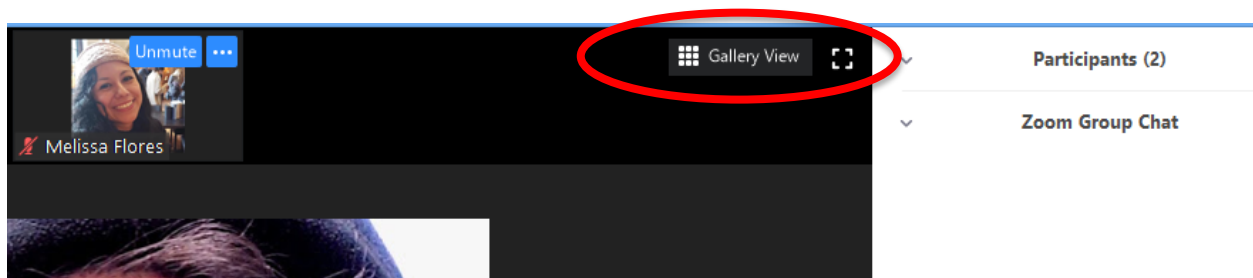
You can send questions by message using the chat function. First, select the “Chat” icon. This will open up the chat box to the right of your screen (or in a new window). At the end of a presentation, you may send questions to ‘Everyone’. Professors JJ Miranda and Alison Pischedda will moderate these depending on the amount of time left at the end of a presentation.



This sidebar will appear on the right hand side of your screen after clicking the “Chat” icon. Select the person you’d like to message from the dropdown where it says “to:”. For questions, please send them to ‘Everyone’, which is the default.



Lastly, by default, Zoom is set up to “Speaker” view where the screen changes between whoever it picks up as actively speaking during a meeting (outlined in green). If you’d instead like to view all participants who are in a meeting, you can select “Gallery” view on the top right-hand corner of your Zoom window. If you have “Participants” and/or the “Chat” boxes selected, you will see the “Gallery” view button to the left of them in the top right hand corner of the speaker box. Once you select it, it will become the “Speaker” view button. You can toggle between the two per your preference, even as one user’s video has been spotlighted, such as during a presentation.



Questions about Zoom? You can contact the department administrator, Melissa Flores by email at mflores@barnard.edu. She will be checking email on the day of the event.