

Course overview:

Scientific Oral Presentations MC280P84 is a modular, **active learning** course, divided into twelve, 90-minute-long, weekly lessons on designing and delivering scientific presentations and on verbal and non-verbal communication skills. In turn, every lesson is divided into a student-led activity (60-70 minutes) followed by an instructor presentation (20-30 minutes) with notes on the next assignment, so that students can prepare in advance and lead/ participate in all activities confidently. These short presentations will also address general concepts regarding both oral communication skills and the state of the art on scientific presentations, from assertion-evidence slide design through storytelling in science communication to cognitive reappraisal and expressive suppression strategies. This semester, our weekly lessons will **start on Wednesday, October 1, from 9:50 to 11:20 am**, in room **304B** (turn right when you exit the elevator at top floor of the Chemistry building), Hlavova 8, Albertov campus. Students must attend and actively participate in **all lessons**. Full commitment is crucial for this course.

Student activities:

Every week, a student will lead a specific activity related to a real-life context (poster presentation, conference talk, job talk, media interview, panel discussion, elevator pitch and science outreach). All other students will be engaged in the activity, helping their classmate. At the end of the semester, students will deliver their final presentations in a session chaired by the instructor (final evaluation).

Date	Activity	Leader
1.10	Social Function: Students will introduce themselves in the context of a social function at a conference. In this role-play exercise, <u>the leader of this activity</u> will then introduce other classmates and make a short announcement as the host. The goal of this activity is for students to develop networking skills, including the ability to politely introduce yourself and others, to engage in small talk, to discuss research problems and to propose collaborations.	
8.10	Slide Presentation: Each student, including the leader of this activity , will deliver a 5-minute PowerPoint slide presentation on their research question (1. Background, 2. Research Focus, 3. Research Question, 4. Purpose Statement, 5. Aims, 6. Future Perspectives) for baseline assessment purposes. The leader of this activity will coordinate with the speakers, requesting that all speakers send their presentations in time before the lesson, in addition to setting the order of the presentations. During the presentations, the leader of this activity will briefly introduce the speakers and ensure that they stay on time, so the leader should present last. Each presentation will be followed by a brief Q&A session and by peer and instructor feedback.	
15.10	Workshop: The leader of this activity will divide the students into two groups. In one group, the students will address the Assertion-Evidence Slide Design (AESD) model in scientific presentations. In the other group, the students will analyze the advantages of combining the Pyramid Principle with the Situation, Complication, Question, Answer (SCQA) framework in creating compelling presentations. In both groups, the students should also flag common PowerPoint mistakes. The leader will also deliver a brief presentation on AESD and SCQA, assign tasks to each group (worksheet), and lead the discussion.	
29.10	Poster Presentation: Each student will present a poster (in paper or pdf format) during a session organized by the leader of this activity. Students will rotate between posters and ask questions. The leader of this activity will coordinate the poster presentations and present his or her poster as well.	
5.11	Elevator Pitch: Each student will pitch a research idea to a professor or senior researcher, in the context of a scientific meeting, for a potential laboratory rotation, collaboration or research position. The leader of this role-play activity will set the venue and program, and ensure that all pitches stay on time. The elevator pitches will be followed by peer and instructor feedback.	

12.11	Science Outreach: Each student will present one of the following scientific education and public outreach activities: (A) science fair for primary school students; (B) secondary school visit; (C) Public talk; (D) Experimental demonstration; (E) 3-minute thesis (3MT) competition; (F) <i>Café Scientifique</i> . The leader of this activity will assign these science communication tasks to each student and encourage his or her classmates to use models, 3D prints and instructional materials, in addition to ensuring that all sessions stay on time. Once again, these sessions will be followed by peer and instructor feedback on the appropriateness of the content and style of the presentation.	
19.11	Visual Communication: Each student will either play a video summary <u>or</u> present a graphical abstract on their study rationale and research approach (model system, experimental paradigm & method) using strong visuals (schematic representations, flowcharts, infographics and diagrams). The leader of this activity will liaise with all classmates to set the order of the presentations and host the sessions.	
26.11	Media Interview: Each student will answer questions about their own research topic or about a recent, ground-breaking discovery in their research area, in the context of a media interview. In this role-play exercise, the leader of this activity, will assign science news or comment articles to his or her classmates to the students who choose not to be interviewed on their own research topics and set the order and conduct the interviews.	
3.12	Job Talk/ Interview: Each student will either be interviewed (task A - job interview) <u>or</u> present a short, 5-minute talk (task B - job talk) for a job for his or her next academic position (MSc., PhD, PDRA or researcher). In this role-play exercise, students can present their own (data club) or someone else's (journal club) research findings. The student in charge will coordinate all activities with his or her classmates and lead the interviews, preparing questions in advance. The interviews will be followed by instructor feedback.	
10.12	Panel Discussion-1: The leader of this activity, will moderate a panel discussion on a specific advance, scientific controversy or knowledge gap in research on either scientific oral presentations (option e.g., Mehrabian's formula, body cues vs. facial expressions) or his or her field of research in which each student will act as a subject matter expert in one of the topics addressed in the previous lessons. This role-play exercise will be used to review the key concepts of this course before the final presentations and to help students develop their critical thinking and analytical skills.	
17.12	Colloquium: The instructor will chair a session in which all students will deliver a 10-minute presentation followed by a 2-minute Q&A session. The leader of this activity will be responsible for setting the schedule, contacting the speakers and ensuring that all activities run smoothly. Depending on the number of students, this session may last up to 3 hours, with a 10-minute break, and will be followed by instructor feedback.	

Learning Goals:

At the end of the course, students are expected to demonstrate proficiency in preparing and delivering effective scientific presentations, with well-designed visuals. They should also maintain appropriate posture, timing and pace, use signposting or transitioning to link ideas and engage the audience through effective verbal and non-verbal communication when networking, critically discussing scientific results, explaining abstract concepts or handling difficult questions. Ultimately, this course aims to develop oral communication skills crucial for future researchers by providing students with the

opportunity to present throughout the semester, to give and receive both peer and instructor feedback, to enhance their oral proficiency in English and to improve their higher-order thinking skills.