HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

PAP301 Seminars in Particle Physics and Astrophysical Sciences

5 ECTS course 2024-2025

https://www.mv.helsinki.fi/home/osterber/Paras_seminars/

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Goals & outcomes of the course

- Develop your **oral & writing skills** in scientific contexts of your own specialisation (”presentation skills”) in English
- Develop your **peer-reviewing skills** (”feedback”)
- Develop your ability to **promote your expertise and market yourself** (”career development”)

- **Plan your MSc thesis** & start writing it (if not already on-going, autumn 2024)
- **Make a MSc thesis disposition** (autumn 2024)
- **Prepare & give oral presentation** related to MSc thesis subject (spring 2025, first oral presentations in December 2024)
- **Give feedback** to your fellow students on their oral presentation (spring 2025)
- **Career related lectures & task(s)** (spring 2025)

Course plan

Gatherings:

- ✓ Period I-IV: Wednesday 14-16 in lecture room Chemicum A121
  Get-to-gethers only occassionally, email sent in advance.
  Preliminary dates for autumn: Wed 4.12 and Wed 11.12.
- ✓ Career related lectures/webinars (spring, date & time to be fixed)

Course homepage:

https://www.mv.helsinki.fi/home/osterber/Paras_seminars/

Autumn 2024: focus on starting and planning of MSc thesis

Spring 2025: focus on the preparation & giving of oral presentation (+ giving of feedback) as well as career related lectures & tasks

Course completion requirements

- ✓ Make MSc thesis supervision agreement (if not yet done, autumn 2024)
- ✓ Complete thesis disposition tasks (autumn 2024)
- ✓ Make career development related tasks (spring 2025)
- ✓ Make one page abstract of seminar topic (autumn 2024- spring 2025)
- ✓ Give a 25 minute seminar (autumn 2024 - spring 2025)
- ✓ Act as opponent to seminar at least twice (autumn 2024 - spring 2025)
- ✓ Minimum 80 % attendance of seminars and career lectures (autumn 2024 - spring 2025)

Those who haven't yet returned their thesis disposition tasks and/or MSc thesis supervision agreements should do it latest spring 2025.

Feedback on thesis disposition tasks will be given before Christmas.

Course assessment

Based only on seminar presentation, grading 0-5, same assessment criteria as FYS4006 Mother tongue (Bachelor's seminars)

- ✓ 25 % timing (providing abstract 1 week in advance & slides 4 h before presentation and keeping the 25 min presentation time)
- ✓ 25 % abstract (title, clarity & readability, language and correspondence to presentation)
- ✓ 25 % presentation material (general impression, amount of slides, text & bullets and figures, formulas & tables)
- ✓ 25 % presentation itself (look & talk towards audience, audible voice, suitable pace and answers to questions)

MSc thesis disposition task

1. **Write your research question** and open it up in detail (Toulmin's model)

- What is your (possible) **conclusion/claim to your research question?**
- Which is **your argumentation** for your (preliminary) **conclusion/claim** and how are you going **show** (proceed to) **it ?**
- What kind of **research methods** are you going using?
- Which **counterarguments** do you have against your methods/conclusion/claim?
- From where can you find **backing/support** to use this methods?
- To which degree is your (preliminary) **conclusion/claim to your research question** certain, probable or possible? How will you **qualify it**?

2. Make outline/chapter composition of your MSc thesis

3. Write short description of the content of each chapter

Deadline: Monday 11.11.2024, return on Moodle only:
https://moodle.helsinki.fi/course/view.php?id=28327.

Discussion 1: MSc thesis research question

12 minutes discussion: Present your answers to the following questions to the other group members one at a time. The other group members are asked to give feedback.

Present your research question & open it up (Toulmin's model)

- What is your (possible) **conclusion/claim to your research question?**
- Which is **your argumentation** for your (preliminary) **conclusion/claim** and how are you going **show** (proceed to) **it ?**
- Which **counterarguments** do you have against your methods/conclusion/claim?
- Did you find this **opening up of the research question** helpful ? Or did you find it difficult **?**

Short reports (max 2 minute) by each group to the whole room

Discussion 2: MSc thesis work process

12 minutes discussion: Present your answers to the following questions to the other group members one at a time. The other group members are asked to give feedback.

- What kind of **research methods** are you going to use?
- From where can you find **backing/support** to use this methods?
- How is the **MSc thesis work process going** for you ?
- Have you **encountered difficulties/obstacles** during the MSc thesis work ? If so, have you **found help/ways to overcome** them ?
- Do you have any **suggestion/feedback** to supervisors/programmes ?

Short reports (max 2 minute) by each group to the whole room

Seminar presentations

- ✓ **Seminar abstract** (in English & pdf format) **at least one week in advance** (sent by email to lecturer) ⇒ put on course home page for other students to be able prepare themselves
- ✓ **Seminar transparencies** (in English) **at least 4 h in advance** (sent by email to lecturer) (latest 10.15 same Wed as presentation)
- ✓ **Give a 25 minute seminar** (in English) preferably about Master thesis or at least about Master thesis subject
- ✓ Science discussion (questions & answers)
- ✓ Feedback on presentation by the two opponents

Abstract of seminar

- ✓ Maximum one page
- ✓ Content:

  i) the research area and topic, its purpose and background

  ii) the methods and data used plus results

  iii) possible conclusions based on the results

- ✓ Try if by any means possible to write the abstract as an (long) scientific abstract
- ✓ To be sent by email to the lecturer in pdf format (who makes it available to the others students) no later than one week before the seminar (email reminder sent).

The tasks of the opponents

- ✓ Gets acquinted with the abstract and the research field
- ✓ Asks (at least) 1-2 relevant questions about the seminar (preferably thought through before the seminar)
- ✓ Gives feedback to the seminar holder on following topics:
  - abstract: title, clarity & readability, language, correspondance with presentation
  - transparencies: logical flow, clarity & readability, amount of material, amount of text & bullets, figures & formulas
  - performance: interaction with audience, enthusiasm, voice, speed, answers to questions

NB! The opponents should behave correctly, be encouraging and give constructive feedback.

Seminar schedule

Wednesdays in Checimum A121 (maximum 2 seminars per session)

- 4.12. 14:15 Noora Suomalainen (Anna Jokiniemi & Noora Eriksson)
- 4.12. 15:15 Anna Jokiniemi (Noora Suomalainen & Rilla Laitila)

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Getting your message through

Material from: Kai Nordlund, Åsa Mickwitz, Harriet Sevelius, Hanna Vehkamäki and Tarja Suni

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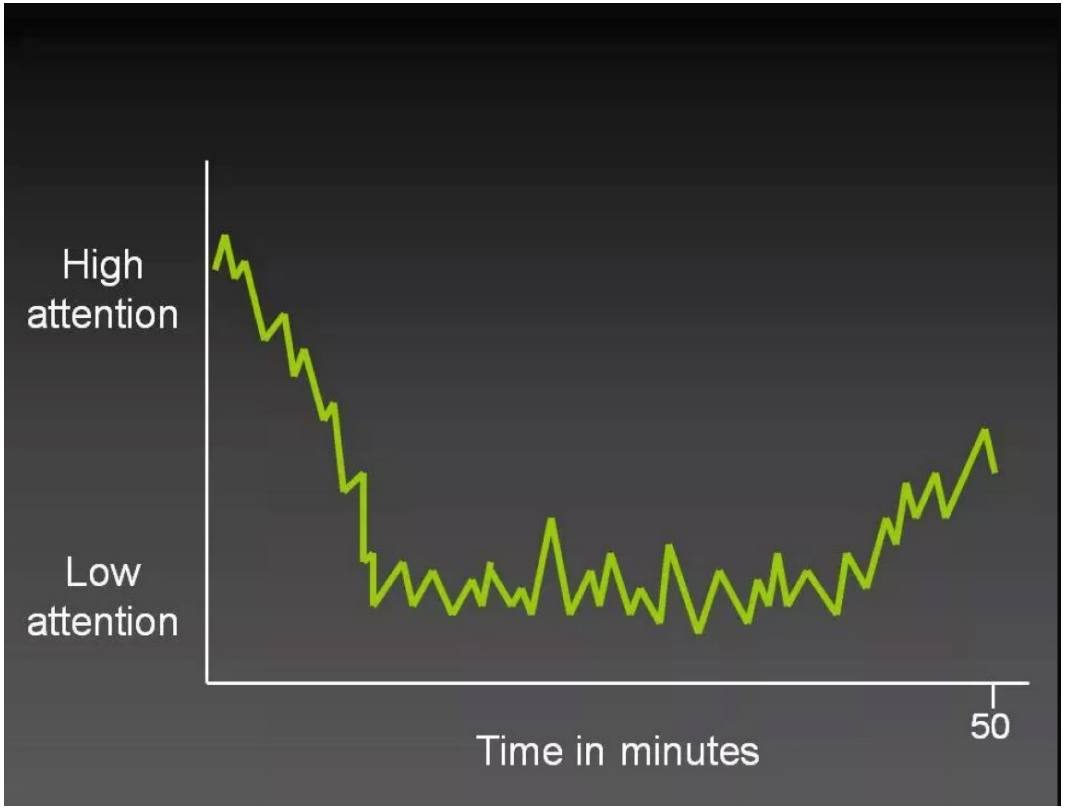
Seminar

You should:

- win the attention of the audience
- show you credibility as a speaker
- keep the interest of the audience
- give the listeners new ideas, thoughts or knowledge

Hartley and Davis 1978: The attention of university students during a 50 minute lecture – where the lecturer lost his audience



Think about your audience

- Always start by thinking about your audience
  - What do they know about the subject?
  - What could they be interested to hear about it?
  - How can you get the attention or make interested as many as possible of what you are talking about?
- To talk to a high school class is completely different than to talk to specialists of your own field → influences the emphasis of your presentation and how much time you spend on introduction, current state of the art, specific research question and methods, results.

How to get your message through ?

Follwing things can prevent your scientific message to reach the listeners:

- Usage of difficult terminology
- Unnecessary and unexplained usage of abbreviations and acronyms
- Too many details without the global picture
- Long derviation of formulas, which is impossible to follow during the limited time of the presentation

The three critical points

- Outline: tell the essential about your presentation and repeat it
- Slide titles: never waste them - give a message!
- Conclusions: Interpret your results

Outline

How much information does this outline give about the scientific content of your presentation?

- Background
- Methods
- Results
- Conclusions
- Future steps

Outline

That's right zero! Outline is first possibility to give relevant scientific information – use it

- Describe the *scientific content* of your presentation to the audience.
- Show where you are going to start, where you will go next, and how you are going to finish.

Good practice to repeat the outline after each part

Scientific topics as outline are a step in right direction …

- Methane in the atmosphere
- Measuring methane fluxes
- Methane fluxes in a Finnish pine forest

Scientific topics as outline (with question formulation)

- Methane in the atmosphere...has a role in what?
  Aerosol formation? Global warming? Oxidation?
- Measuring methane fluxes...with what? was how?
  Trivial?/Easy?/Complicated?/Needs development?
- Methane fluxes in a Finnish pine forest...were what?
  Unexpected? Surprising? Similar to global average?

Give the audience a message !

Summarise the main message of each section in your outline; it includes the topic but is more informative:

- Methane is an important greenhouse gas
- Measuring methane fluxes with chambers can be tricky
- Surprisingly variable methane flux in a Finnish pine forest

The three critical points

- Outline: tell the essential about your presentation and repeat it
- Slide titles: never waste them - give a message!
- Conclusions: Interpret your results

Never EVER waste title space!

- Title is the first thing the audience will see and read
- It is the biggest, the most visible space you have on your slide
- Use it to full advantage: give the *message* of your slide!
- Then it will be of less relevance into what details you go that allows the listeners to get a picture of what you want to get across.

Small ion concentration measurements

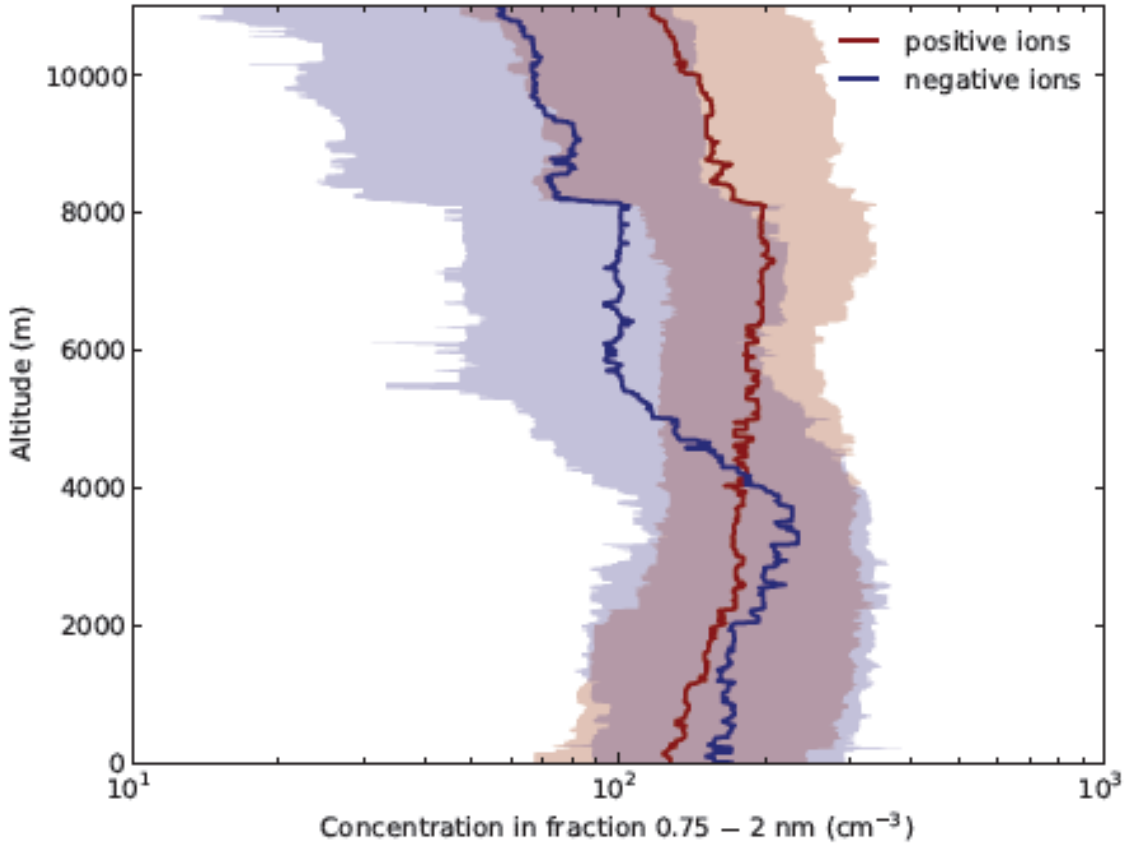
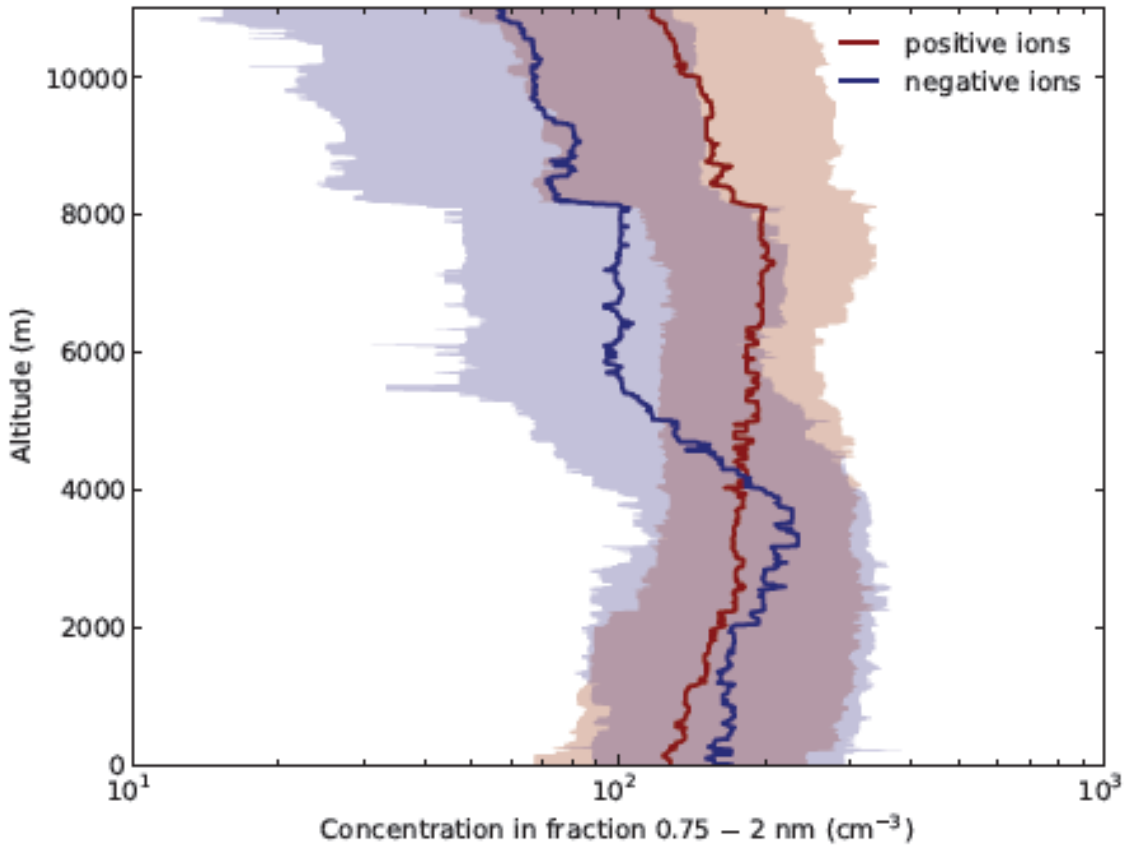


Fig. 9. Small ion concentration as a function of altitude – medians and 25 and 75% quantiles are presented.

Perhaps the most typical type of title, this one gives the complete topic of this slide. But do you understand why the speaker shows this slide? Do you see the scientific significance?

The concentration of small ions showed the expected height profile



This title gives the main point !

If title becomes too long you can divide it into a title and subtitle.

Fig. 9. Small ion concentration as a function of altitude – medians and 25 and 75% quantiles are presented.

The three critical points

- Outline: tell the essential about your presentation and repeat it
- Slide titles: never waste them - give a message!
- Conclusions: Interpret your results

The conclusions tells the relevance of your results/research

- The frame of reference of the results and their immediate relevance demand your expertice and reveals that you are an expert.
- Anybody can write a list of results… but only YOU can tell the audiance the relevance of the results for the global picture.
- With your own expertice, tell what has succeeded and what not as well as what you recommend should be done differently or as next steps.
- Always end with the main message.

Best practices

- Interact with the audience both visually and verbally !
- Time your presentation well and put regularly highlights or attention drawers (to keep the interest of the audience)
- Don’t use too many effects and colours for the slides, removes the attention from the key points: your message
- Don’t put too much material per slide (3-4 main bullets) so that the audience have time to read the slide & listen to you

Best practices

- Add illustrations, graphs, pictures (”a picture says more than 1000 words”) but they should be clear, easily readable and relevant for the message !
- Highlight relevant parts of formulas and tables to ease their reading
- Add references & put page numbers (for further reading & questions after the presentation)
- Make the presentation personal, to reflect your personality !