Ensembl Train the Trainer Workshop

Universidad de Antioquia
13 November 2025

Welcome to the *Knowledge Document* for this Ensembl Train the Trainer workshop. Everyone who is registered for the course has access to edit this document. Please feel free to use this document to ask questions to the Ensembl team throughout the workshop. If you wish to ask questions privately, please do not hesitate to contact the Ensembl Helpdesk.

The *Knowledge Document* is a great way of capturing the knowledge exchanged during the course and saving it for future use by yourselves and those who can't attend this course. Remember - you don't have to contribute, but any additions will be welcomed!

The course learning outcomes are:

- Describe what makes good / bad training and the skills needed by a trainer.
- Appreciate your own learning approach, how it may differ from others and how you can deliver training appropriate to different learning approaches.
- Design a training session with appropriate aims and learning objectives tailored to your audience.
- Use existing Ensembl training materials to create your own training materials.
- Deliver a short training course on using an aspect of Ensembl.

Course overview

Agenda

09:30 – 11:00 Principles of bioinformatics training

11:00 – 11:15 Break

11:15 – 12:30 Components of Ensembl training

12:30 – 13:30 Lunch break

13:30 – 14:30 Practical

14:30 – 14:45 Break

14:45 – 16:00 Presentations

16:00 – 16:10 Feedback and wrap-up

Trainer

Aleena Mushtaq Stolworthy

Demo, exercises and slides available to download

https://training.ensembl.org/events/2025/2025-11-13-UDEA_TtT

Feedback survey

https://docs.google.com/forms/d/e/1FAIpQLSdHN-ESBjafl0E9AHuDl3A1VDxxjMZzwp7gChfwcFjla6ql-Q/viewform

We would really appreciate it if you could share your thoughts with us regarding these sessions. We are interested in your opinions, how you feel the experience has benefited you and how it could be improved. If you could find a few minutes to complete a short survey at the end of the last session it would really help us in improving the training we can deliver.

Q&A

If you have any questions and/or problems that you would like to share and apply to the whole class please add them below.

Write your **question** after the last one you can see in this document (you can add any screenshots if you think it might help. We will **answer** your question underneath.

1. **Q:**
   A:

2. **Q:**
   A:

3. **Q:**
   A:

4. **Q:**
   A:

5. **Q:**
   A:

6. **Q:**
   A:

7. **Q:**
   A:

8. **Q:**
   A:

9. **Q:**
   A:

10. **Q:**

    A:

11. **Q:**

    A:

12. **Q:**

    A:

13. **Q:**

    A:

14. **Q:**

    A:

15. **Q:**

    A:

Practical

Task

You have one hour to prepare a five-minute training session on how to export data in Ensembl with your group (make sure that everyone in the group gets a chance to present). Your training session *can* include:

- ➔ Some background information about the data
- ➔ Information about where to find the data in Ensembl
- ➔ A step-by-step demonstration and/or hands-on element

Note that there are many ways to export data in Ensembl. Try to focus on one specific data type and/or species that you are interested in. For example, your training session could focus on teaching participants how to export the DNA FASTA sequence of the human *BRCA2* gene.

Content

Consider the principles of bioinformatics training and components of Ensembl training when preparing your training session. You may use existing Ensembl training materials modified to fit your teaching style. Use this presentation template (make a copy) if you wish to use slides.

Learning objective

Your session should include one SMART learning objective. Use an AI client (e.g. ChatGPT, Microsoft Copilot, Perplexity AI) to help you generate, adapt and/or review your learning objective according to your training content.

Target audience

Your target audience are Masters and PhD students in the field of molecular biology, who are familiar with Ensembl, but have not used it extensively.

Delivery

Upload your presentation to this shared Google Drive folder. You have five minutes to deliver your session to your peers, followed by a Q&A and feedback on your delivery.

Additional resources

This section of the *Knowledge Document* provides additional resources that might be useful to you in training others, developing bioinformatics skills and knowledge, and creating Ensembl training materials.

Train the trainer

You can find many useful online resources to help you become a better trainer, including free online courses and publications discussing how learning works, delivering training courses and improving your teaching:

- ELIXIR SPLASH
- The Carpentries Instructor Training
- The Learning Scientists
- How Learning Works: 7 Research-Based Principles for Smart Teaching
- Small Teaching by James M. Lang
- Small Teaching Online by Flower Darby
- Understanding How We Learn
- Train the Trainer: Design Genomics and Bioinformatics Training (free online course) developed by Wellcome Connecting Science
- Application of a bioinformatics training delivery method for reaching dispersed and distant trainees (Hall, et al., 2021)
- Ten simple rules for organising a bioinformatics training course in low- and middle-income countries (Moore, et al., 2021)
- Peer Teaching as Bioinformatics Training Strategy: Incentives, Challenges, and Benefits (Rahman, et al., 2022)
- Life Science Trainers website and Slack channel

Genomics and bioinformatics training

We have collated a list of resources focusing on genomics and bioinformatics training below:

- The EMBL-EBI Training portal provides courses related to genomics and bioinformatics, including free on-demand online training, data resource tutorials and recorded webinars.

- The Global Organisation for Bioinformatics Learning, Education and Training (GOBLET) is an international community that organises various bioinformatics-related events and provides open-source training materials and resources.
- National Health Service (NHS) Genomics Education Programme offers a range of bitesize genomics-related tutorials and webinars.
- The University of Manchester has curated a Collection of Bioinformatics Learning/Training Materials.
- You can explore a list of free online bioinformatics courses curated by the Federal Institute of Technology (ETH) Zurich.
- The Online Bioinformatics Resources Collection (OBRC) contains annotations and links for over 2,000 bioinformatics databases and software tools.

Ensembl training

The resources below are designed to help you develop Ensembl-specific training:

- Standard Ensembl presentation slide deck
- Demonstrations and walkthroughs
- Practical exercises
- Online tutorials
- Ensembl Helpdesk
- Ensembl Trainer Community on Google Groups

Ensembl publications

When you use Ensembl in your work, please cite the most recent Ensembl publication. You can find a full list of Ensembl publications is available on the Ensembl website.

- Ensembl (vertebrates):
  Dyer SC, Austine-Orimoloye O, Azov AG, et al. Ensembl 2025. Nucleic Acids Research. 2025 Jan;53(D1):D948-D957. DOI: 10.1093/nar/gkae1071. PMID: 39656687; PMCID: PMC11701638.
- Ensembl Genomes (non-vertebrates):
  Yates AD, Allen J, Amode RM, et al. Ensembl Genomes 2022: an expanding genome resource for non-vertebrates. Nucleic Acids Research. 2022

Jan;50(D1):D996-D1003. DOI: 10.1093/nar/gkab1007. PMID: 34791415; PMCID: PMC8728113.