ATLAS Analysis Software Tutorial

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Tutorial overview

- 3-4 tutorials per year
- Targeting new PhD students, postdocs, and faculty
- Coupled to the ATLAS Induction Day
  - Introductory sessions about all aspects of ATLAS work
- Covers primary software necessary for data analysis
  - Assumes proficiency in C++, python, ROOT
  - Setting up CERN computing accounts, grid credentials, etc.
  - Core analysis software framework, data formats, analysis workflows, tools for finding and accessing data, statistical tools
- Lectures introducing concepts and hands-on exercises
- Material persists online for future reference and self-study
- Other dedicated tutorials are available in ATLAS
  - Machine learning, statistics, specific analysis frameworks, etc.
  - Beyond the scope of this talk

Daily Agenda

Day 0 - Basic Account and Software Setup

Day 1 - Analysis Workflows and Statistics

Day 2 - Finding and Analyzing Data I

Day 3 - Finding and Analyzing Data II

Day 4 - Available Analysis Tools

Remote tutorials

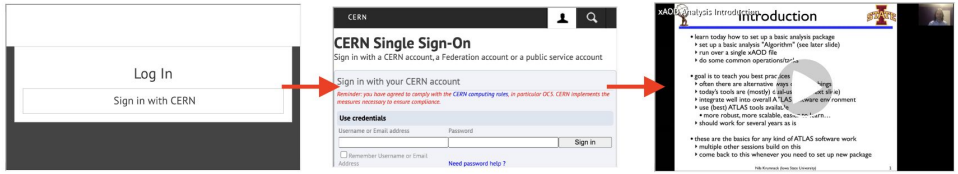
- Pre-COVID, tutorials were held 100% in-person
- COVID restrictions required tutorials to be moved to an online format in 2020-22*
- Allows timezone accommodation
- Recorded lectures and slides available online for asynchronous learning
- Live Q&A session with experts held via Zoom
  - 15:00 CET/CEST to maximize overlap with timezones
  - Responses recorded in Google docs for future reference
- Tutors available on Discord for quick help during hands-on exercises
  - After-hours and post-tutorial questions can be answered asynchronously

Remote tutorials - videos

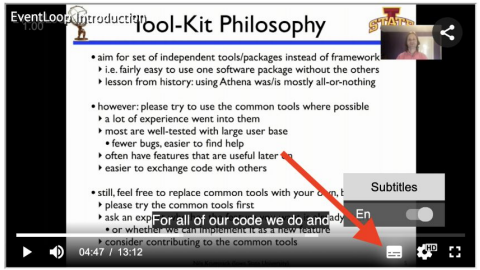
- Closed captioning provided for accessibility

Videos and slides

To accommodate different timezones, availability, and travel restrictions, lectures are provided as recorded videos. The slides for each video are also available. In order to access these videos, you must be logged in with your CERN account. Once you log in for one video, refresh the page and all videos should be available.



Captioning has also been provided for most videos. To turn on captions, simply click the subtitles icon near the bottom right of the video once it starts playing, then click the slider labelled **En**.



Remote tutorials - Discord

ATLAS EXPERIMENT

ATLAS Analysis SW Tutor...

TEXT CHANNELS
- announcements
- general
- day-0-basic-account-a...
- day-1-analysis-workflo...
- day-2-finding-anal...
- day-3-finding-analyzin...
- day-4-available-analysi...
- organizers

LECTURE HALL
- Auditorium
- Green Room

BREAKOUT ROOMS
- room-1-chat
- room-2-chat
- room-3-chat
- room-4-chat
- room-5-chat
- room-6-chat
- Room 1

JVeatch #3949

day-2-finding-analyzing-data-1 | Material: https://atlassoftwaredocs.web.ce...

can you, please, help me?

bcarlson 06/29/2022
oops sorry
did you use this?asetup AthAnalysis 22.2.76

[redacted] 06/29/2022
yes

bcarlson 06/29/2022
trying to see where there may be an issue

[redacted] 06/29/2022
maybe I have errors because of problems with VOMS and IAM

bcarlson 06/29/2022
no that's not it
did you setup this file MyAnalysis/src/components/MyAnalysis_entries.cxx

[redacted] 06/29/2022

```
[vlysenko@lxplus773 components]$ cat MyAnalysis_entries.cxx
#include <MyAnalysis/MyxAODAnalysis.h>

DECLARE_COMPONENT (MyxAODAnalysis)
[vlysenko@lxplus773 components]$
```

bcarlson 06/29/2022
@Nils Krumnack do you know this error?

Nils Krumnack 06/29/2022
Sorry only seeing this now. My best suggestion is to start over with a clean shell and build directory and see if the issue disappears.

Message #day-2-finding-analyzing-data-1

INSTRUCTOR — 2
- JVeatch
- [redacted]

ONLINE — 6
- [redacted]
- [redacted]
- [redacted]
- [redacted] Listening to Spotify
- [redacted]
- [redacted]

OFFLINE — 49
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Hybrid tutorial

- The most recent tutorial (June 27 - July 1, 2022) was in a hybrid format
  - In-person meetings allowed again at CERN
  - Country/institute restrictions prevent some individuals from traveling
- Combine in-person and remote formats to maximize impact
  - Live lectures for those attending in-person or synchronously via Zoom
  - Videos/slides available for anyone attending asynchronously
  - Combined live Q&A session at 15:00 CEST
  - Hands-on exercise help conducted in-person and on Discord
- Survey responses to solicit feedback not yet compiled

New tutorial design

- We are currently redesigning the tutorial
- Emphasis on integrating tools with physics projects & activities
- Will provide a reproduce a simple analysis to be done from start to finish
  - MC sample production
  - DAOD to ntuples
  - Calibrations
  - Systematic variations
  - Processing datasets on the grid
  - Selection optimization
  - MC and data-driven background estimates
  - Statistical analysis
- Work is ongoing and will be tested in US ATLAS this autumn