

ELMED219-2022

Onsdag Jan. 5, 2022

Kursets plattformer: hva, hvordan og hvorfor?

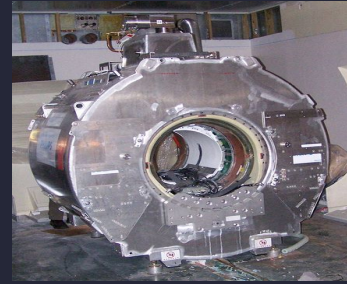
Alexander S. Lundervold (HVL)



Høgskulen
på Vestlandet



ELMED219



MITT UIB



GitHub



DataCamp




DISCORD



MITT UIB

<https://mitt.uib.no/courses/33274>



Konto

Dashbord

Emner

Kalender

Meldinger

Historikk

Hjelp


Si fra

Vær God

ELMED219

Vår 2022


Siste kunngjøringer



Velkommen til ELMED219!
Godt nytt år! ELMED219 starter med egenaktivitet mandag 3. janua...

Postet på: 30. des. 2021 i 17.06




[Svar](#)



Digital undervisning i januar
På grunn av smittesituasjonen i Bergen og landet for øvrig, er det b...

Postet på: 17. des. 2021 i 10.17

Kurset tilhører [Institutt for biomedisin](#) og er assosiert med [Institutt for datateknologi, elektroteknologi og realfag](#) og , Høgskulen på Vestlandet, og [Mohn Medical Imaging and Visualization Centre](#) .



I løpet av kurset får du innblikk i beregningsorientert tankegang, maskinlæring og kunstig intelligens, og en forståelse for pros og cons for AI i fremtidens medisin. Det blir gitt en guidet tur gjennom noen biomedisinske og kliniske anvendelser av matematiske og statistiske modelleringsteknikker, samt prinsipper for utvalgte sensorer og måleinstrumenter i forskning og klinisk praksis.

Vi møter konsepter som **big data**, **data-analyse**, maskinlæring, og kunstig intelligens (AI), med eksempler fra personilpasset og prediktiv medisin. Du vil ta i bruk metoder og verktøy fra numerisk programmering, data-analyse og «scientific computing» for medisinske anvendelser, og lære om viktigheten av **open science**, **deling av data**, og **reproduserbar forskning**.

Tentativ timeplan finner du [her](#) og [der](#) (og [her](#)).

Gå til modulen [Gjør deg klar](#) og deretter til [kursets GitHub-repositorium](#) for å komme i gang!

Se emnestrøm

Vis emnekalender

Vis varsler for emneinnhold


To Do

- Velkommen til ELMED... 30. des. 2021 i 17.06 X
- [ELMED219] Forelesning 4. jan. i 8.15 X
- [ELMED219] Demonst... 4. jan. i 10.15 X
- [ELMED219] Seminar 5. jan. i 12.15 X
- [ELMED219] Seminar 6. jan. i 8.15 X
- [ELMED219] Seminar 11. jan. i 8.15 X
- [ELMED219] Seminar 13. jan. i 8.15 X






<https://github.com/MMIV-ML/ELMED219-2022>

 Search or jump to... Pull requests Issues Marketplace Explore

MMIV-ML / ELMED219-2022 Public Unwatch 3 Fork 0 Star 3

<> Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags Go to file Add file Code About

 alu042 Update README.md f23f3b 38 minutes ago 46 commits

Lab0.1-ML	link fix	1 hour ago
Lab0.2-MRI (optional)	rename	1 hour ago
Lab1-NLP	init lab descriptions	3 hours ago
Lab2-MLeng	init lab descriptions	3 hours ago
Lab3-DL	init lab descriptions	3 hours ago
Lab4-BRATS	init lab descriptions	3 hours ago
assets	tentative time schedule	2 months ago
project	Update README.md	yesterday
testdata	instructions + tests for local installs added	4 hours ago
.gitignore	populated with some general info	2 months ago
LICENSE	Initial commit	2 months ago
README.md	Update README.md	38 minutes ago
environment-img.yml	tweaks	1 hour ago
environment.yml	tweaks	1 hour ago
setup-img.md	tweaks	1 hour ago
setup.md	tweaks	1 hour ago

README.md

ELMED219-2022: Artificial intelligence and computational medicine

The course is offered by the [Department of Biomedicine](#) in collaboration with the [Department of Computer science](#),

Material for the 2022 version of the course ELMED219, UiB and HVL

Readme

MIT License

3 stars

3 watching

0 forks

Releases

No releases published


Create a new release


Packages

No packages published

Publish your first package

Contributors 2

 arvidl Arvid Lundervold

 alu042 Alexander Lundervold

Languages

Jupyter Notebook 100.0%



DataCamp

https://www.datacamp.com/groups/shared_links/62f2d2edf42c90f0b39871e67e498a5f760ffe4300ed70159d08ca6dff92217d

Learn

Workspace

Certification

Talent

Search Catalog

My Progress

My Bookmarks

Leaderboard

Assignments

CATALOG

Tracks

Competitions BETA

Assessments

Courses

Practice

Projects

Assignments

All Groups

TITLE	ASSIGNER	DUE BY	STATUS
Supervised Learning with scikit-learn Course		Fri Jan 28 2022	IN PROGRESS
Earn 1000 XP XP		Fri Jan 07 2022	IN PROGRESS
Machine Learning Fundamentals in Python Assessment		Thu Jan 06 2022	IN PROGRESS
Python Programming Assessment		Thu Jan 06 2022	IN PROGRESS



<https://www.overleaf.com>

Menu

ELMED219_2021_project_team_1

Review Share Submit History Chat

Source Rich Text

Recompile

elmed219 ...

main.t...

File outline

Research plan

A brief bac...

Objectives...

Material a...

Evaluation

Data manage...

Descriptio...

Sharing of ...

Ethical co...

```
1 \documentclass[11pt]{article}
2 \usepackage[utf8]{inputenc}
3 \usepackage[graphics]
4 \usepackage[left=2.5cm,top=2.5cm,right=2.5cm,bottom=2.5cm]{geometry}
5 \usepackage{times} % Font type
6 \usepackage[url] % For clickable web addresses in pdf document
7 \usepackage{graphics} % For figures
8 \usepackage{float} % To force figure or table here [n]
9 \usepackage[multicol] % For tables with different rows and columns
10 \usepackage{lpsum} % For placeholder text (lorem ipsum ...)
11 %\usepackage{biblatex}
12
13 \title{Precision medicine and quantitative imaging in glioblastoma}
14 \author{ELMED219 (Artificial Intelligence and Computational Medicine), 4-29 January 2021\}
15 {\footnotesize \url{https://github.com/PMIV-ML/ELMED219-2021}}
16
17 \date{Team #1}
18 \begin{document}
19
20 \maketitle
21
22 \begin{scriptsize}
23 \begin{verbatim}
24 Team #1 members:
25
26 Name, Category, E-mail
27 NN, MED, nn@student.uib.no
28 MM, TEK, mm@student.uib.no
29 KK, ING, kk@student.uib.no
30
31 \end{verbatim}
32 \end{scriptsize}
33
34 \vspace{3mm}
35 \section{Research plan} % 3-5 pages incl. figures and bibliography
36
37 \vspace{3mm}
38
39 \subsection{A brief background to the field}
40
41 Glioblastoma is ... \cite{Louis2019}. ... Aladape et al. \cite{Aladape2019} ...
42 DUMMY TEXT:
43 \lpsum
44 \lpsum[5]
45
46 \subsection{Objectives and expected impact}
47
48 DUMMY TEXT:
49 \lpsum
50 \lpsum[5]
51
52
53 \subsection{Material and methods}
54
55 DUMMY TEXT:
56 \lpsum
57 \lpsum[6] \\
58
59 Table is given in Tab.-\ref{tab:elmed219-dummy} ...
60
61 % See: https://www.overleaf.com/learn/latex/tables#creating_a_simple_table_in_LaTeX
62 \begin{table}[n]
63 \begin{center}
64 \begin{tabular}{|c|c|c|}
65 \hline
```

Precision medicine and quantitative imaging in glioblastoma

ELMED219 (Artificial Intelligence and Computational Medicine), 4-29 January 2021

<https://github.com/PMIV-ML/ELMED219-2021>

Team #1

Team #1 members:

Name	Category	E-mail
NN	MED	nn@student.uib.no
MM	TEK	mm@student.uib.no
KK	ING	kk@student.uib.no

1 Research plan

1.1 A brief background to the field

Glioblastoma is ... [1]. ... Aladape et al. [2]. ... DUMMY TEXT: Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consetetur.

1.2 Objectives and expected impact

DUMMY TEXT: Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consetetur.

1.3 Material and methods

DUMMY TEXT: Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, una sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc.

1



<https://discord.gg/3DCbM8aW45>

ELMED219-2022

general

TEXT CHANNELS

- # general
- # team1
- # team2
- # team3
- # team4
- # team5
- # team6

VOICE CHANNELS

- General
- team1
- team2
- team3
- team4
- team5
- team6

ADMIN — 1

- alundervold

ONLINE — 9

- BenBjorsvik
- Borghild T. Larsen
- CarolineHaugen
- Enya Akhtar
- Gobbles
- herissiv
- Ingrid Andersen
- mix
- MuhammadEid

OFFLINE — 26

- Amalie
- AmalieA
- arvidi
- Ben Bjorsvik
- Brodden
- David_Peter
- Haldia Tuva
- HannaL
- hedda askheim
- HenrikThue
- Ingeborgbry
- Ingridaase
- Jens Long Nguyen
- Jens Thuestad
- Jensicus
- KarinaN
- Linnea

alundervold Yesterday at 11:14 AM

Det er veldig snilt, tusen takk 😊

alundervold Yesterday at 11:26 AM

PDF-er legges ut på GitHub slik

Tentative time schedule, January 3-28, 2022

Time	Activity
Monday, January 3-4	Get an overview of the course, installation of software and/or test with Google Colab. Follow the instructions at README.
Tue, Jan 4	About the course / Motivation lectures
10:15-10:30	1-video about: 1-PDF-video about: 1-video about
10:30-10:45	1-PDF-video about: 1-PDF-video about: 1-PDF-video about
10:45-11:00	1-PDF-video about: 1-PDF-video about: 1-PDF-video about
Wed, Jan 5	Alundervold / Alexander (including Lunderud)

alundervold Yesterday at 12:13 PM

Vi starter igjen klokken 12:45, etter en lunsjpause. Tema blir da "Medisinsk AI".

→ Glad you're here, BenBjorsvik. Yesterday at 12:17 PM

Wave to say hi!

BenBjorsvik Yesterday at 12:18 PM

alundervold Yesterday at 1:30 PM

Det var en trykfeil i fremdriftsplanen på <https://github.com/MMIV-MU/ELMED219-2022> (korrigert nå). Vi starter klokken 12:15 i morgen, onsdag.

alundervold Yesterday at 1:55 PM

@everyone Fint om alle skriver inn sitt Discord-brukernavn i regnearket https://docs.google.com/spreadsheets/d/1XIH2ZwYSovhD4MhHigRyc5_ByckKm189vCfebPU/edit?usp=sharing.

Google Docs

ELMED219-2022

Sheet1

Sett et kryss ved det fagområdet du hører til.

Student,Median,MedTek,Dataingenier,Annet,Discord-navn,Team

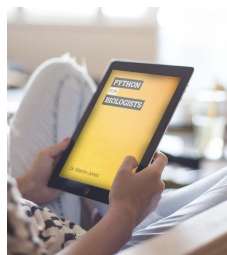
nb

Maria Mathea Kahler Aarhus,X,MariaMathea,1

Medisin,TI

Enya Noor...

• Why Python ?



Programming for Biologists

Teaching biologists the tools they need to use computers to do cool science

- 1) Easy to Learn and Use
- 2) Mature and Supportive Python Community
- 3) Support from Renowned Corporate Sponsors
- 4) Hundreds of Python Libraries and Frameworks
- 5) Versatility, Efficiency, Reliability, and Speed
- 6) Big data, Machine Learning and Cloud Computing
- 7) First-choice Language
- 8) The Flexibility of Python Language
- 9) Use of python in academics
- 10) Automation

<http://www.programmingforbiologists.org/about/why-python>

<https://www.upgrad.com/blog/reasons-why-python-popular-with-developers>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6920002>



J Med Libr Assoc. 2020 Jan; 108(1): 29-35.
Published online 2020 Jan 1. doi: 10.5195/jmla.2020.819

PMCID: PMC6920002
PMID: 31897049

Why do biomedical researchers learn to program? An exploratory investigation

[Ariel Deardorff](#)

We use the Python language because it now pervades virtually every domain of the biosciences, from sequence-based bioinformatics and molecular evolution to phylogenomics, systems biology, structural biology, and beyond. [[link](#)]

• Why Jupyter notebooks ?



NATURE | TOOLBOX

[[link](#)]

Interactive notebooks: Sharing the code

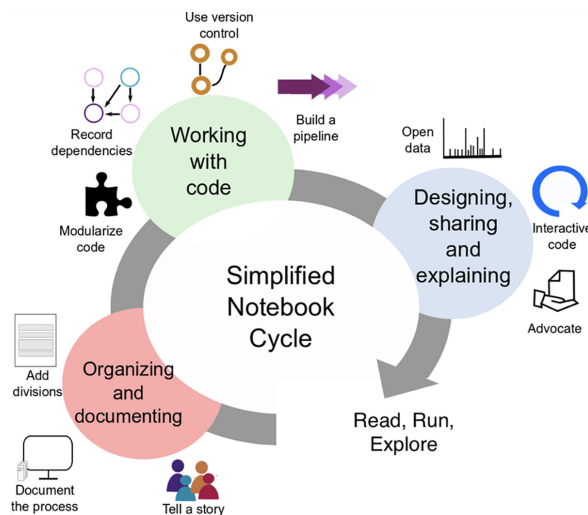
Jupyter notebooks provide an environment where you can freely combine human-readable narrative with computer-readable code.

• Why GitHub ?

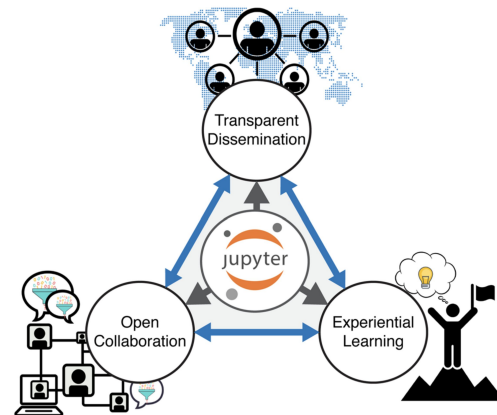
GitHub is like facebook for programmers. Everyone's on there. You can look at what they're working on and easily peruse their code and make suggestions or changes.

It's really open source. "Open source" is not so open if you can't easily study it. With github, all of the code is easily inspected, as is its entire history.

GitHub lowers the barriers to collaboration. [[link](#)]



Ten simple rules for writing and sharing computational analyses in Jupyter Notebooks [[link](#)]



... their interactive and easily deployable framework can drive experiential learning opportunities for computational novices to develop their own skills and better understand metabolomics data analysis [[link](#)]