CƠ SỞ DI TRUYỀN HỌC BIỂU SINH

(INTRODUCTION TO EPIGENETICS)

March 1st to May 31st 2025

Phuc Loi Luu, PhD

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MARCH 01 2025

Content

- Class member introduction
- Curriculum of Epigenetics 2025
- Projects and important dates
- Evalutation for the course
- How Epigenetics 2025 lecture work?
- Linux OS, Google Colab, Linux Command Lines and github

Class member introduction

PHUC–LOI LUU, PhD

Current Affiliation	**Head of Scientific Research Office** Institute for Applied Research in Health Sciences and Aging (ARiHA) - Thong Nhat Hospital 01 Ly Thuong Kiet st, Tan Binh District, HCM city, Vietnam
Cơ quan	Viện Nghiên cứu Ứng dụng Khoa học Sức khỏe và Lão hóa Bệnh viện Thống Nhất
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Telephone	+84 (0)901802182 **E–mail** luu.p.loi@googlemail.com loilp@bvtn.org.vn

EDUCATION AND PROFESSION

2023 – 2024	**Tam Anh Research Institute (TAMRI)**	*Head of Data Science Division*	Ho Chi Minh City, Vietnam
2022 – 2023	**Zymo Research**	*Bioinformatic Group Leader*	Ho Chi Minh City, Vietnam
2014 – 2022	**Garvan Institute of Medical Research,** UNSW Sydney	*Bioinformatics researcher in Computational Cancer Genomics and Epigenomics under the supervision of Prof. Susan Clark Conjoint Senior Lecturer*	Sydney, Australia
2011 - 2014	**Max Planck Institute for Molecular Biomedicine,** University of Muenster	*PhD student in stem cell computational biology under the supervision of Prof. Hans R. Schöler*	Muenster, Germany
2010 – 2011	**KIST–Europe**	*Data Scientist*	Saarbruecken, Germany
2008 – 2010	**Max Planck Institute for Informatics,** University of Saarland	*Bioinformatics Post-graduate student under the supervision of Prof. Thomas Langauer*	Saarbruecken, Germany
2005 – 2008	**Nong Lam University** - Ho Chi Minh City	*Lecturer*	Ho Chi Minh City, Vietnam
2000 – 2005	**University of Science** - Ho Chi Minh City National University	*Bioinformatics undergraduate student under the supervision of Prof. Ho Huynh Thuy Duong*	Ho Chi Minh City, Vietnam

Curriculum of Epigenetics 2025

00.0 Introduction to the course "Epigenetics 2025" [Loi] - 01/3/2025
00.1 Epigenetics, Epigenomics and its applications [Loi] - 01/3/2025

01.0 Introduction and overview of Epigenetics [Loi] - 08/3/2025
01.1 Basic Bash script and Awk [Hung/Thanh/Kim] - 08/3/2025

02.0 Chromatin based epigenetic control I [Loi] - 15/3/2025
02.1 Basic programing with R [Hung/Thanh/Kim] - 15/3/2025

03.0 Chromatin based epigenetic control II [Loi] - 22/3/2025
03.1 Statistical analysis with R [Hung/Thanh/Kim] - 22/3/2025

04.0 Histone modifications, TFBSs, DNAaseI Hypersensitivity and ATAC-seq analysis [Loi] - 29/3/2025
04.1 Hands-on: Deeptools, featurecount and DESeq2 [Tam/Minh] - 29/3/2025

05.0 DNA-methylation and epigenetic control [Loi] - 05/4/2025
05.1 Data visualization with R [Hung/Thanh/Kim] - 05/4/2025

06.0 DNA methylation analysis with DMRcate [Thien/Hoang] - 12/4/2025
06.1 DNA methylation visualization with IGV [Hung/Thanh/Kim] - 12/4/2025

Curriculum of Epigenetics 2025

07.0 Non-coding long and small RNAs in epigenetic control [Loi] - 19/4/2025
07.1 Visualizing epigenomics with UCSC Genome Browser [Hung/Thanh/Kim] - 19/4/2025

08.0 Mechanisms of epigenetic control during development [Loi] - 26/4/2025
08.1 Mining Gene Expression GTEX, Epigenome Roadmap and ENCODE [Hung/Thanh/Kim] - 26/4/2025

09.0 Epigenetics and Human Disease Development [Loi] - 03/5/2025
09.1 Mining BLUEPRINT and TCGA database [Minh] - 03/5/2025

10 Mechanisms of epigenetic control in plant I [Nguyen] - 10/5/2025

11 Mechanisms of epigenetic control in plant II [Nguyen] - 17/5/2025

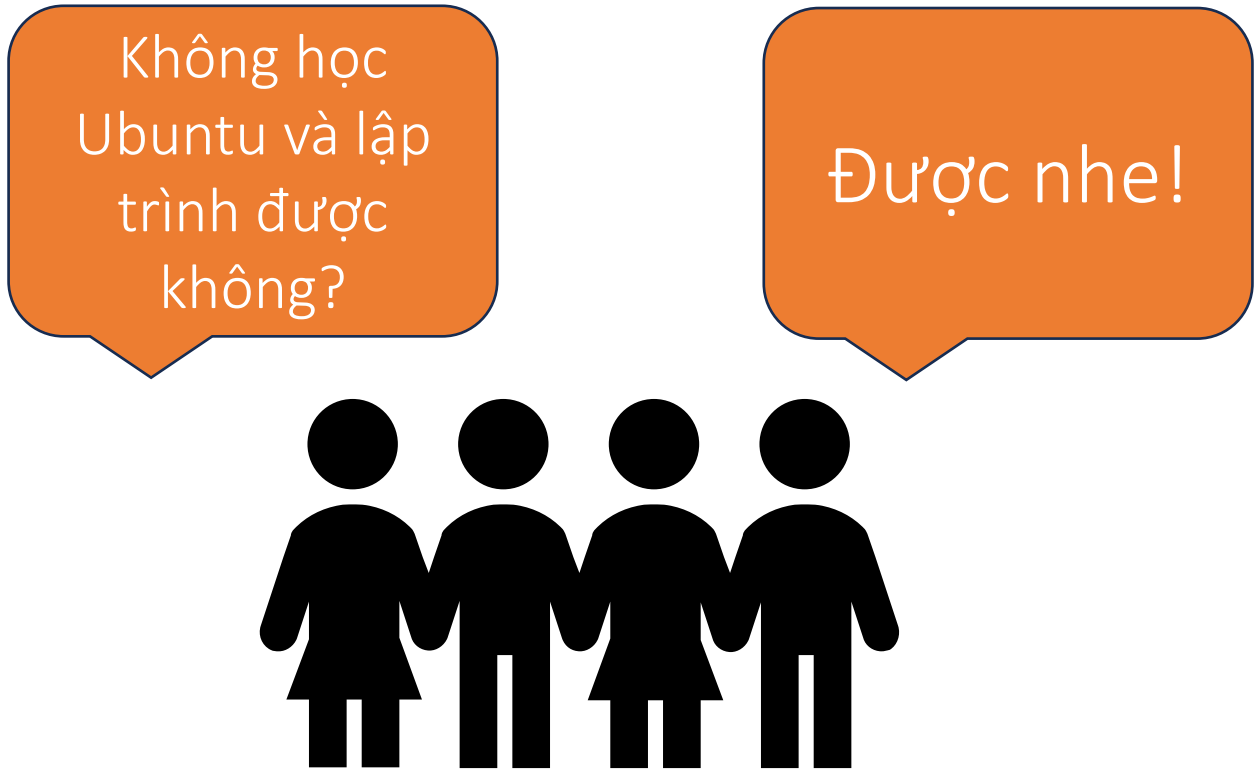
12.0 Epigenetic Biomarkers and epigenetic therapy [Loi] - 24/5/2025
12.1 Course Review [Loi] - 24/5/2025

13.0 Group Project Presenting (31 May 2025) - 31/5/2025

Projects and important dates (**31 May 2025**)

No	Project	Aim	Requirement	Group
1				
2				
3				
4				
5				
6				

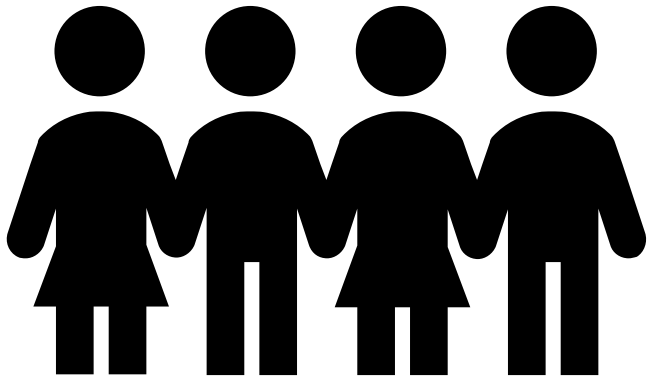
Do we need to install and learn Ubuntu and programing?



Do we need to install and learn Ubuntu and programing?

Không học Ubuntu và lập trình được không?

Được, nhưng như có chân mà ngồi xe lăn!



Evalutation for the course

- Presentation date (final exam): **31 May 2025**
- Max 30 min each group
- 5-10 questions each student
- Report (20) +

  Presentation (20) +

  Slide (10) +

  Questions for the presentation (25) +

  Questions for the all of lectures (25)

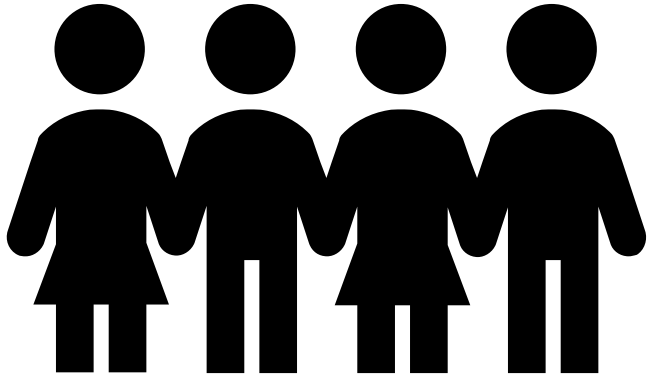
How does my lecture work?

- Start at 8:00 AM every Saturday from **01 March 2025** to **31 May 2025** (14 weeks)
- 15 min oral test at the begin of the lecture
- Time breaks in a lecture (30 min)
- Lecture end at **11 A**M
- No attendance checking

No attendance checking

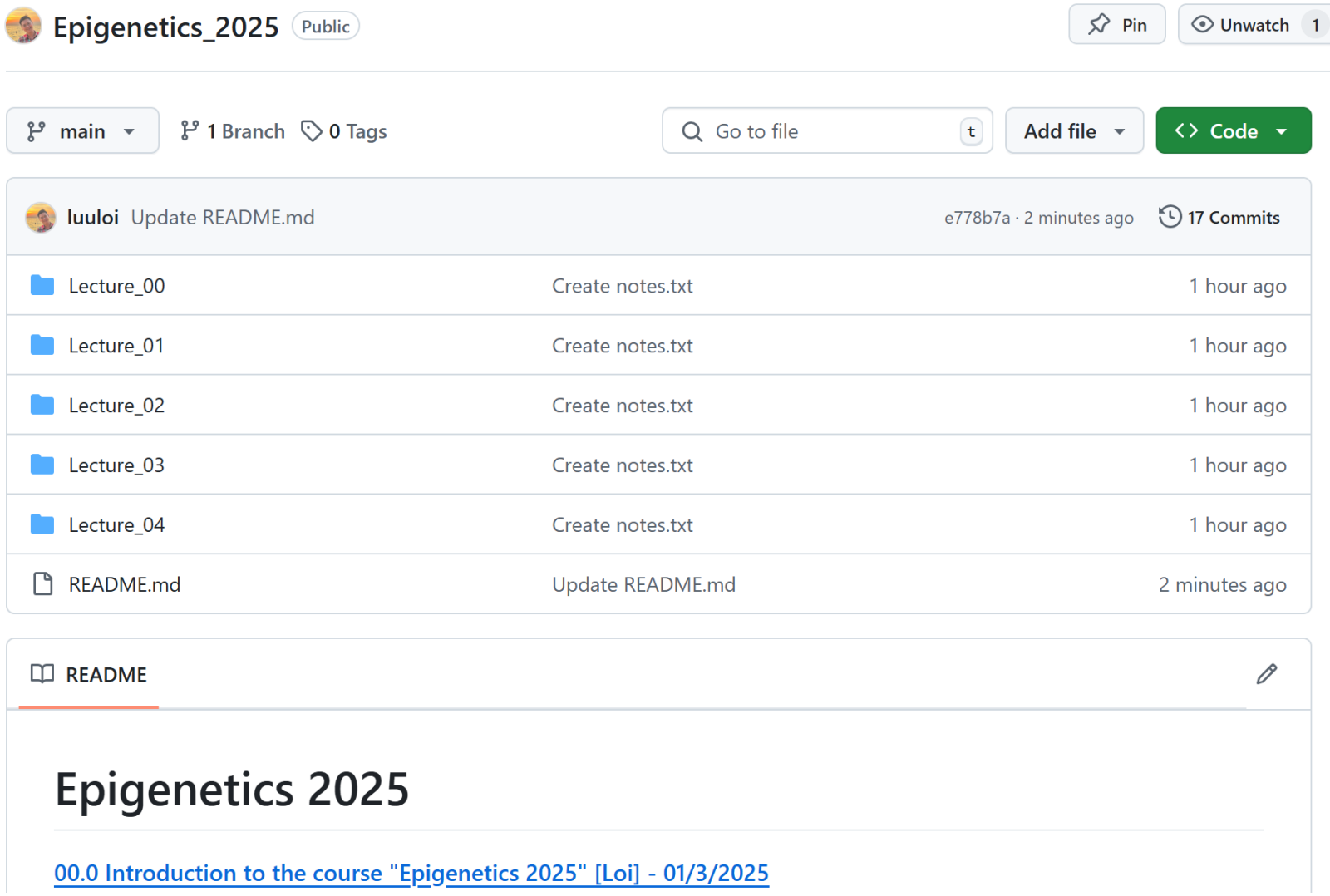
Nghỉ học được không bạn?

Được nhe!



No attendance checking

https://github.com/luuloi/Epigenetics_2025/



Epigenetics_2025 Public

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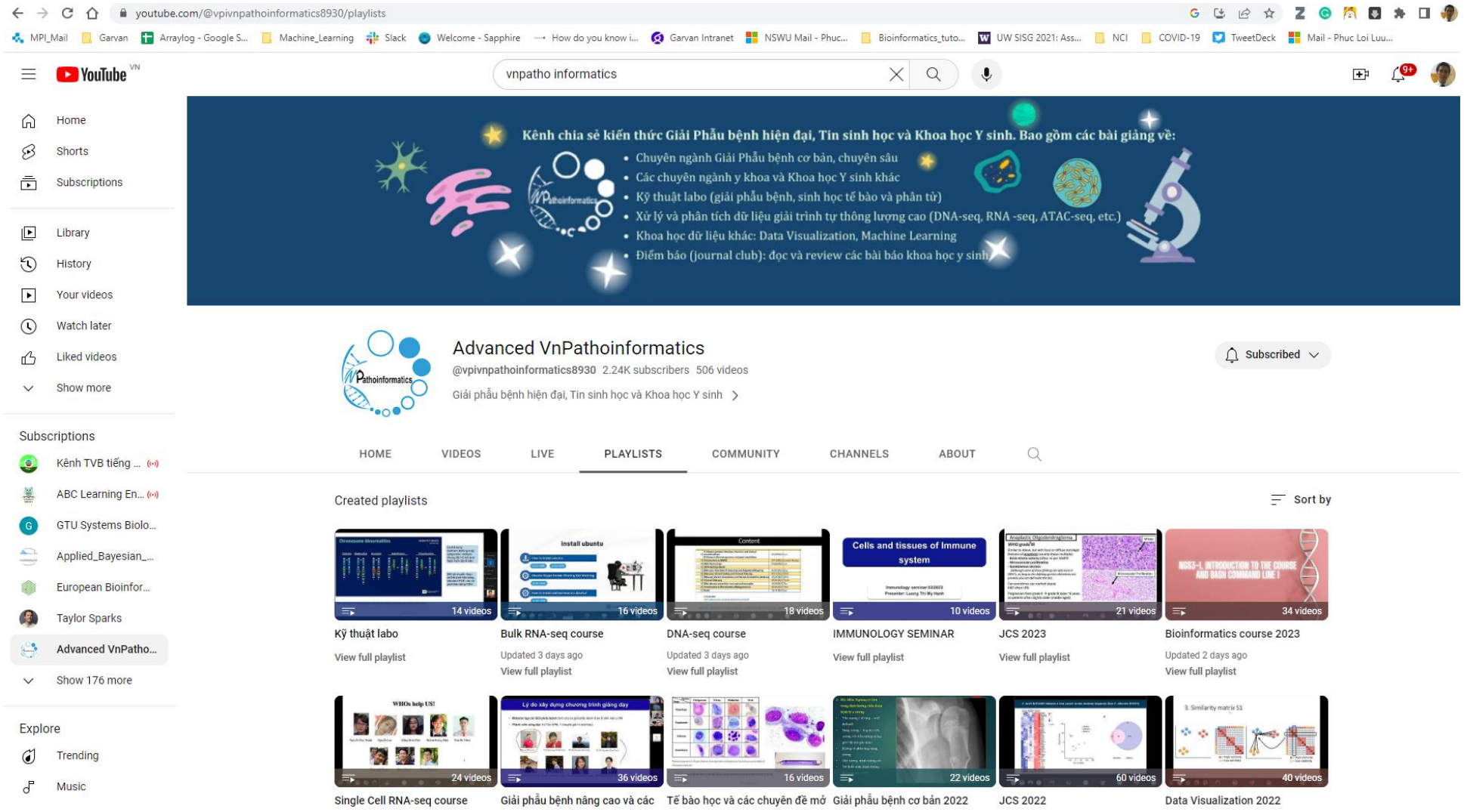
luuloi Update README.md e778b7a · 2 minutes ago 17 Commits

Lecture_00	Create notes.txt	1 hour ago
Lecture_01	Create notes.txt	1 hour ago
Lecture_02	Create notes.txt	1 hour ago
Lecture_03	Create notes.txt	1 hour ago
Lecture_04	Create notes.txt	1 hour ago
README.md	Update README.md	2 minutes ago

README

Epigenetics 2025

00.0 Introduction to the course "Epigenetics 2025" [Loi] - 01/3/2025



https://www.youtube.com/@vpivnpathoinformatics8930/playlists

Thank you for your attention!