NC STATE UNIVERSITY

Global Training Initiative
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2026 Winter Chonnam National University Campus AI Program Proposal

Program Time: 1/20/2026-2/12/2025 (proposed)

Program Participants: Minimum 20 Chonnam Undergraduate Science or Engineering Students, TOEIC 600-700

Program Component: AI Course plus Communication&Culture Class

- Communication&Culture Class: 11 sessions, 3 hours per session, communication skills, presentation skills, public speaking, Culture Class in various topics (Cultural Shock, Higher Education, Business Culture, Volunteerism, Sports, Politics, Family, etc.), a total of 33 lecture hours
- Applications of Large Language Model in Science and Engineering: 11 sessions, 3 hours per sessions, a total of 33 lecture hours; one Teaching Assistant will be on site. **This course is the most popular in the NC State AI Academy.**

This intensive training will provide international students and researchers with the knowledge and practical experience to integrate, create, and Fine-tune Large Language Models (LLMs) for research and practical applications.

Course Overview: Learn How To:

- Install Python and Jupiter Notebook and Google Cola
- API Integration (LLMs like OpenAI GPT 4, Claude, Llama3.2, and Mistral)
- Fine-tuning techniques LLMs for text Processing
- Fine-tuning techniques LLMs for Image and Vision Processing
- Building Agents and RAG systems for text word/pdf document
- Building Agents and RAG and Agent systems for structured date retrieval
- Hands-on experience with Lamaindex, LangChain, Ollama, Flask and Streamlit
- Learn how to deploy open source LLMs locally or on your own cloud server
- Pre-train and distill a new Small Language Model from Scratch
- Create, pre-train and distill a new Small Language Model from Scratch

The students will need

- A Gmail account and Google Drive

- To preinstall Python (>3.08, but not 3.13 - we will send detailed instructions and demo)
- To help you prepare for the workshop, we will be holding a pre-training Q&A, software installation, and preparation meeting via Zoom.
- Details will be included in your registration confirmation email.

The students will create

- By the end of the course, participants will have gained the expertise to build, fine-tune, deploy and create customized LLM models for research and practical applications, using cutting-edge tools and techniques, such as Knowledge based chatbot, auto visual disease detection; small model creation;
- All 10 modules have working Python codes for your references, reuse and modifications.

Instructor Information: Prof. Paul Liu, PhD. College of Sciences, Department of Marine Earth and Atmospheric Sciences (https://meas.sciences.ncsu.edu/people/jpliu/)

- 20 years in database management
- MySQL, C, Java, Python and PHP Web programming
- 4 years in LLM fine-tuning, Agentic RAG, and web applications
- Creator of Ocean AI and OceanGPT
- NCSU Data Science and AI Academy Instructor and Lecturer for Graduate Students
- Conducted 5 hands-on Intensive Training of Generative AI for Science

- **Academic activities:** Engineering labs visit & Discussion/interview with professors and research team; Hunt Library (famous robotic library in the U.S.) tour and Library Database/Research method workshop; Graduate Admission Workshop
- **Cultural activities:** Community Volunteering Activity; Duke University and Duke Garden visit; Movie night on Tuesday Night; 3 times Grocery Shopping
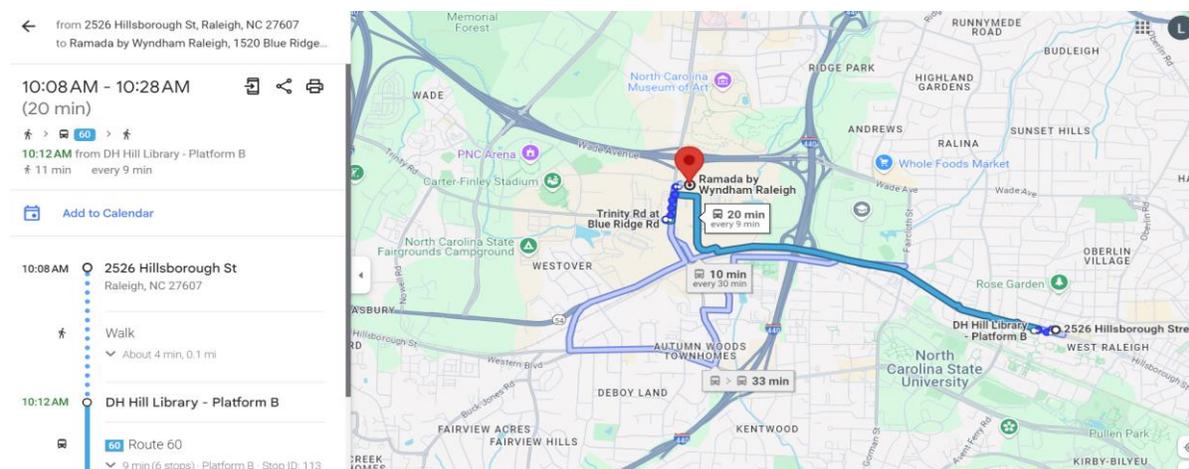
*Please review the calendar for the daily schedule

Program Fee: USD3380 per person, including:

- Communication&Culture, and AI course
- NC State Library access
- NC State Learning Management System Moodle access

- Course materials
- Academic activities and cultural activities
- Airport pickup and dropoff
- Orientation and campus tour
- Housing: 2-star hotels near campus, 20 minutes by bus (NC State University Wolfline Route 60, free ride, operates from 7 am to 10 pm, frequency 15 minutes). Two students live in one room; a coffee maker, microwave oven, and refrigerator are inside. The hotel will provide breakfast every day. (please send the gender pair group to us; this price is for gender pair group)

https://www.wyndhamhotels.com/ramada/raleigh-north-carolina/ramada-raleigh-blue-ridge/overview

- Welcome lunch and farewell dinner
- Graduation ceremony and certificate
- Optional Tanger Outlet Shopping trip with additional fee: USD80 per person if 10 students or above join
- Optional 3-day Washington D.C. trip with additional fee: USD500 per person if 10 students and above, USD400 per person if 20 students and above. This fee includes: 4.5 hours of bus transportation from NC State to Washington, D.C., 2 nights of hotel accommodations, a D.C. MetroCard, 3 days world class museum visit, drop-off at DCA airport, and one GTI staff member will accompany the group to D.C.

*The price didn't include visa, airfare, and medical insurance.

*The program fee only covers daily breakfast, welcome lunch, and farewell dinner. The participants need to pay for other meals themselves.

NC State Dining Hall, lunch buffet 12.25 USD, dinner buffet 13 USD

https://dining.ncsu.edu/location/fountain/

Please contact me if you have any questions:

lynn.wang@ncsu.edu

Appendix: student's feedbacks:

Student's feedback:

Did the learning experience apply to your LLM-related project?   📋 Copy chart
52 responses

76.9%

- Yes, it did!
- No, not exactly
- Not applicable
- Yes, because now I have a clearer vision; I still need additional understan...
- Helped me add this knowlege to my fu...
- I don't currently have an LLM-related...
- exploring how to use these in my teac...
- I don't have an LLM-related project bu...
- Yes, it did in many ways, but it would...

What did you think about the total number of hours of instruction? (number of   📋 Copy chart
days, hours in a day)
52 responses

9.6%

67.3%

- Just right!
- Too many, could have been done in le...
- Too few, could have used more time
- Maybe can be seperated to more day...
- Too many topics perhaps; time was ab...
- Enough time but still felt rushed
- As a novice, it was too much informati...
- One more day would be ideal. To cove...

▲ 1/2 ▼

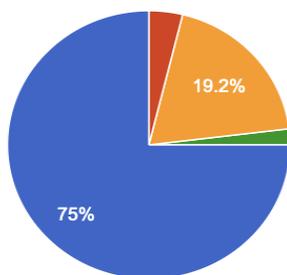## Would you recommend this course to other individuals with a background similar to yours?

52 responses
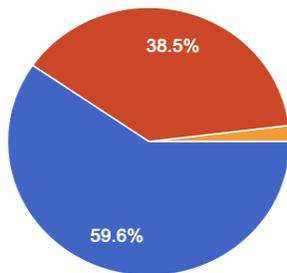

- Yes
- No
- Maybe
- I think it would be overwhelming without some background previously; I have done some amount of background reading

75%

19.2%

To what extent do you agree with the following statement:

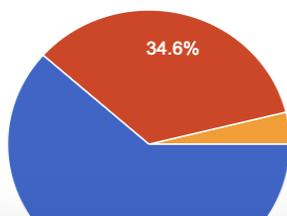## "This LLM course was useful to me."

52 responses

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

38.5%

59.6%

To what extent do you agree with the following statement:

"This LLM course helped me understand relevant applications."

52 responses

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

34.6%

What did you gain from this AI-LLM Short Course?52 responses

Lots of coding notebooks on how to implement, fine-tune, and utilize AI models and associated tools
Using AI and LLMs for custom purpose
A better understanding of LLM systems.
I gained hands-on experience with LLMs, including API usage, local deployment, and simple app building. It gave me a clear, beginner-friendly introduction and boosted my confidence to work with AI tools.
I learned how to use the LLM tools on my own, use my own data to train them and utilise my own functions to feed to the LLMs.
understanding of differences between RAG, fine tuning and tools
Working knowledge of LLMs including how to fine tune, run locally, utilize Colab, utilize Flask and Streamlit to provide users with internet access
Some basic knowledge of LLMs and some confidence to learn more
Pretty much all my knowledge of LLMs. I knew very little before taking this course. I learned so much and feel more confident helping others that use LLMs, as well as working with LLMs myself.
Use RAG ad Agents for specic industry, image analyis using AI, Steamlit & Flas applicattions, use of Ollama for local running
I gained hands-on experience with tools and frameworks such as ChatGPT API, Groq API, Ollama, and Llama, including LlamaIndex for data integration. We explored practical deployment using Flask and Streamlit, and learned how to fine-tune large language models (LLMs), implement retrieval-augmented generation (RAG), and train models using Google Colab. Additionally, we practiced reading and processing content from various file types, including text files, CSVs, and PDFs.
experience with large language models (LLMs), including fine-tuning, deploying retrieval-augmented generation (RAG) systems, and building AI applications using Flask and Streamlit. Worked with tools such as Ollama and integrated LLMs into a custom HTML web application. Applied cross-interaction techniques between LLMs and other machine learning models, utilized neural networks for image classification, and performed data tokenization for text processing.
I learned how to effectively use API keys to gather real-time information, how to use ollama and flask or streamlit to use open source models via a web interface, how to fine-tune open source and proprietary LLMs, how to build an LLM from scratch, and more.
This course reinforced my existing knowledge in AI/ML and built on my python foundation. The biggest takeaway for me is how to run a model locally and control the training data given to the model.
I gained more comfort working with API's and managing the tools to manipulate AI!
Basic understanding of how LLM works
Knowledge about LLMs and how to implement them
understanding of the capabilities of LLMs, how to use tools, agents, fine-tune LLMs, RAG, streamlit, remove the "fear"
Learn the fundamentals of developing an LLM. How to finetune a model and to create agents.
Foundational understanding of how LLMS and other applications integrate together to be applied to research and practical projects. I gained an understanding of running models in google colab to execute models and fine-tune them. I learned about the scale of data that these applications can handle. I learned that I have a lot more to learn.
Learnt to utilize LLMs from a "bottom-up" approach and learnt how to train LLMs.
How to create a RAG
Working knowledge of calling/creating/tuning LLMS from python and command line
As a ML faculty, I still learned new materials such as RAG, and how to fine tune are execute local models.
Working knowledge about LLMs
learned a lot of things (mostly keywords that I need to research myself to understand better)
from this AI-LLM course I learned how to run LLM models online using API access as well as Local models, I learned how to fine tune, use RAG and build agents to use tools and serve them as WebAPPS using streamlit and Flask. I also learned how to code and train small LLMs from scratch and distill LLMs.

a good understanding of LLM and how it works

Gained knowledge and hands-on practical expertise on LLMs, including: connecting and using LLM APIs (such as OpenAI, Groq), building lightweight python interfaces for LLMs using Flask and Streamlit, obtaining hands-on experience with RAG and Fine-tuning, and building a small language model from scratch.

How to do finetune and work with RAG and also how to train models. Also, how to use LLM models offline (locally) and online.

A very good hand-on experience of basics of LLM model for research use.

Completed hands-on workshop covering advanced LLM applications, including real-time function calls, API integration (OpenAI, Groq), and running models locally. Gained practical experience in building web apps with Flask and Streamlit, implementing Retrieval-Augmented Generation (RAG) for smart chatbots, auto-coding for data visualization, and fine-tuning and training small LLMs from scratch.

This course deepened my understanding of LLMs as research-enabling technologies and provided actionable strategies for incorporating AI tools into engineering workflows, data pipelines, and proposal development.

Acquired proficiency in deploying Retrieval-Augmented Generation (RAG) pipelines, integrating APIs from OpenAI, Groq, and Ollama, with hands-on hyperparameter tuning, high-performance computing orchestration, and custom LLM architecture design; adept at exposing models via RESTful Flask APIs or interactive Streamlit dashboards.

learn how to use API key to run model locally or on colab, rag, and tuning LLM model

improved skills and confidence in LLM related topics

Saved me from studying on my own for 2 months

How to fine tune pretrained models and use RAG for particular applications

Valuable introduction to LLMs, how to fine-tune them, add specific function calls to them and apply them to specific tasks locally or by accessing the LLM server.

I am a beginner. For a short period of time I learned a lot from this training, learning running the Ollama, Streamlit, groq, llama, RAG, and a lot more.

Gained hands-on experience in building, fine-tuning, and deploying LLMs for research workflows using APIs, RAG, and web apps with Flask and Streamlit, both locally and in the cloud.

Learned about the resources that I will use in my future research.

I gained an important background in AI and LLMs and their potential applicability to my work.

An overall understanding of how AI/LLMs are setup and used, their limitations and ways to augment with RAG and fine tuning.

Beyond the concepts, a significant focus on actual code has provided wide ranging tools to implement AI/LLM concepts.