VIP: ML + NLP for Financial Markets
VXU — Fall 2026

Instructor Information 1

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Instructor Information 2

Name: Dr. Sudheer Chava
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Office Hours: If required schedule through Arnav

Class (Team Meetings) Information

Dates: Every Monday
Time: 6:30 PM – 7:20 PM
Classroom: Scheller COB 4167 (Trading Room)
VIP Page: https://vip.gatech.edu/teams-all-in-one/entry/1279/

Team Focus

The Artificial Intelligence for Financial Markets team explores applications of AI in finance, a rapidly growing field with emerging challenges and opportunities. A key aspect of our work involves creating high-quality datasets and benchmarking models for underexplored areas of finance. Students also learn to apply modern ML tools to better understand, analyze, and predict financial market behavior.

Problems Involved

With the application of machine learning and natural language processing in finance comes the natural challenge of collecting and cleaning large datasets before applying any model. Students gain hands-on experience in data scraping, cleaning, labeling, and wrangling which are essential steps for building reliable datasets used in financial modeling. Once the data is prepared, students apply state-of-the-art ML and NLP models to explore questions in economics and financial markets. Past projects have included measuring subjectivity in earnings call transcripts, developing Text2SQL systems for financial databases, analyzing sentiment in financial news, exploring companies' annual SEC reports through knowledge graphs, analyzing IPO filings, and using large language models to study corporate narratives and investor behavior.

ChatLLM Policy

Students are not only permitted but also actively encouraged to utilize ChatLLMs, such as ChatGPT, Bard, and others, for class-related activities. These tools can be a valuable resource for composing, proofreading reports, preparing presentations, and even writing or debugging code.

However, transparency is key. When leveraging ChatLLMs:

- **Documentation**: Always document your use of these models. Whether you're refining a document or generating code, it's essential to note the involvement of ChatLLM.
  - **For Documents**: If you employ a ChatLLM to enhance or edit a report, please reference this in the appendix.
  - **For Coding**: When using ChatLLMs to generate or modify code, provide this information within code comments.
- **Prompt Details**: Include both the input prompt you provided to the model and its resulting output. This helps in understanding the context and the assistance received.
- **Model Identification**: Always specify which ChatLLM platform or model version you've used. Different models might offer varying perspectives or solutions, so this distinction is important.
- **Ethics and Licensing**: Ensure ethical utilization of LLMs. Always abide by the licensing terms under which the model is released. Familiarize yourself with and adhere to the stipulations of the license.
- **Awareness of Model Limitations**: While LLMs are powerful tools, they may occasionally produce biased information, exhibit hallucination, or generate sensitive outputs. Exercise caution and discernment. If you are below 18 years of age, secure permission from a parent or legal guardian before using services like ChatGPT.

By following these guidelines, you ensure a transparent and ethical approach to using advanced AI tools in academic settings. Remember: You will never be punished or rewarded based on the frequency of ChatLLM usage. However, failing to adhere to the transparency guidelines could adversely affect your grades.

Course Objectives

After this course (successful 3 semesters), you should be able to...

- Develop a basic understanding of ML/NLP. We suggest every student take CS-4650/4641 later as this is not a substitute for it.
- Develop a basic understanding of Financial Markets. We suggest every student take MGT 3078 for the same as this is not a substitute for it.
- Develop an understanding of how ML/NLP can be applied in different settings for various Financial Markets.
- Publish a research or demo paper in a top conference/workshop. (If you work **sincerely** for 3 semesters)

Books, Compute, & Software

Books:

- Speech and Language Processing (3rd ed. draft) by Dan Jurafsky and James H. Martin. It is available for free at https://web.stanford.edu/~jurafsky/slp3/
- Machine Learning for Algorithmic Trading (2nd edition) by Stefan Jansen. Available online for free at https://github.com/stefan-jansen/machine-learning-for-trading. Chapters 14, 15, and 16 are most relevant to this course.

Compute Resources: You should have a reasonable (8GB RAM (16GB recommended), 512GB disk (SSD recommended)) personal computing device. **As we don't require you to purchase any book for the VIP, we suggest you to set aside $10 for Google Colab pro for GPU compute you might need.**

Software: You will be required to install basic software based on the project you are working on. Everyone will at least need some IDE (I prefer VS Code), python, anaconda (miniconda will work), and Git.

Phone and Device Policies

During the lecture or discussion, you should not be looking at your phone, iPad, or computer screen. You are only allowed to play with your gadgets when we are having hands-on coding during the lecture.

Tips for Success

- Be proactive about your success in the course.
- Take advantage of your peers and seniors in VIP or Lab. No one knows everything, I will try to learn new things from you as well.
- Attend every class and office hours and ask questions.
- Every time you come across a new concept, carefully think how it could be applied to your own project/research.

- Write modularized well-documented, reproducible code.

Grading

1. VIP Notebook (15%)
    - Notebook for each week will be due at 11:59 PM EDT on Saturday.
    - For grading we will drop 2 week's notebook with the lowest score.
    - Late notebook submission will result in 0.
2. Project Work (40%)
    - Terms of Participation Agreement (0% but mandatory)
    - Research Paper Reading and Summarization (10% reserved)
    - Midterm Report/Presentation (20%)
    - Final Report/Presentation (20%)
3. Assignments and Quizzes 45%)
    - Weekly Assignments
    - Assigned Quizzes (Administered during class)

As part of the assessment of the above, each student is required to:

- Complete the mid-term peer evaluation. This is a web-based form, and links are available on the VIP website. **Failure to complete the peer evaluation will result in a full letter grade deduction. Late submissions are not accepted.**
- Complete the final peer evaluation, which will be available for one week during the week preceding finals. **Failure to complete the peer evaluation will result in a full letter grade deduction. Late submissions are not accepted.**

Submission Policy

- Weekly student notebook will be submitted through a survey form we will share.
- All reports, presentation slides, etc. will be submitted via Canvas or Label Studio.

Criteria for Final Grades
At the end of the semester, the following mapping will be used for letter grades:

Grade	Percentage Range
A	$\geq 90\%$
B	$[80\%, 90\%)$
C	$[70\%, 80\%)$
D	$[60\%, 70\%)$
F	$< 60\%$

Respect Policy

I respect your time:

- I will come prepared to help you understand the course material and prepare you to become a successful independent researcher.
- Communication is key: I cannot help you if I do not know what is going on.
- I am here to help you, this is your time, so let me know what I can do to help you succeed.
- If there is something that you would like me to do differently, please, let me know. I am happy to work with you to make your VIP experience the best it can be.

Respect my time:

- Be on time for class.
- Pay attention when I am talking to you.
- Come to class prepared by doing the work and staying for office hours when you need help.
- Use Piazza for general question answers so everyone can benefit from your question. Limit communication with me through email. Please send an email only when you want to discuss something personal. I will only reply to your email if it is sent from gatech.edu address.

Respect each other:

- Use respectful language when talking with one another.

Letter of Recommendation Policy
You need all of the following to request a letter of recommendation.

- At least 2 completed semesters in the same VIP.
- A submitted paper to a top ML/NLP conference/journal. If you are unresponsive during paper writing and submission process, you are disqualified from letter of recommendation.
- No academic honesty issues.
- We should remember you from your engagement in VIP.

After working for 2 or more semesters in VIP and if you were awarded a FinTech Fellowship, then only are you eligible to request LoR from Dr. Sudheer Chava.

Academic Honesty

The main principle in VIP academic honesty is that you will not present someone else's work as your own. Tests and specific assignments (homework, lab assignments, etc.) must be your own work. For other work, you are encouraged to consult whatever sources are helpful in learning and understanding the issues associated with the material, but you should always provide appropriate references and citations where such material is included in your VIP notebook, programming code, presentations, etc.

Additionally, to provide a good working environment for all students, you're expected to adhere to rules given here, posted, or disseminated in class. Academic Honesty is taken seriously and failure to follow these principles will result in disciplinary actions as stated in the Student/Faculty Handbook.

Accommodations for Students with Disabilities

Georgia Tech offers accommodations to students with disabilities. If you need classroom accommodation, please make an appointment with the Office of Disability Services (www.disabilityservices.gatech.edu). If you have an accommodation letter from ODS, please provide your team advisor with a copy of your accommodation letter and discuss with them how your accommodations will be applied. This should be done as early as possible in the semester.

*[1]

[1] Latex Template: https://www.overleaf.com/latex/templates/syllabus-template/phrsybxrtwmf