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This Will Be Updated As Pilot Programs Progress

ETAS-4: GPT-4 Based Equitable Tutor and Advisor System

Purpose Statement

The ETAS-4 (Equitable Tutor and Advisor System) is designed to leverage the advanced capabilities of GPT-4 to democratize education, ensuring equity and fairness in academic support. Our aim is to provide a low-cost, high-quality educational assistance tool to students and educators, augmenting traditional learning methods and enhancing the overall educational experience. By integrating ETAS-4 into the educational framework, we advocate for the regulation and constructive use of AI technologies, ensuring they serve as beneficial tools that contribute positively to the academic community rather than undermining its integrity.

ETAS-4 is committed to preparing students and educators for the future of the evolving workforce. We aim to equip them with the skills and knowledge necessary to adapt to changing environments, promoting lifelong learning and continuous professional development. Through ETAS-4, we strive to make education more accessible, personalized, and effective, fostering an environment where technology and human potential work hand in hand to unlock new possibilities for learning and growth.

According to the University of Pittsburg, “Generative AI will reshape the skill requirements of white collar occupations and so the educational pipeline must adapt if today’s students are to fill these roles in the future. As professors and teachers struggle to detect LLM-generated essays in classrooms, a more practical approach should incorporate generative AI applications as learning tools, much like calculators in mathematics. It is not that students should completely depend on generative AI, but learning the tools of the day should be part of any curriculum that prepares students for the future of the world.”

For more broad and general information on how to approach the use of AI in the classroom, we highly recommend you explore the Teach AI: AI Guidance for Schools Toolkit.

General Requirements

Since the ETAS-4 system is built upon the custom GPT feature of OpenAI's ChatGPT service, a GPT Team ($25 per month per person) or Enterprise subscription is required. If using Team, we recommend that administrators or teachers create one account for launching and creating individual tutors - and one account to be shared by the class to access the models (50$ per class per month). If you are planning on using one of these systems in the long term, we recommend shifting to an enterprise subscription (which is similar to Google's G suite system). Other accounts or subscriptions will be necessary in order for the ETAS-4 system to do custom actions or tasks such as math (specific information found in tutorials). To ensure a seamless integration and optimal performance of the ETAS-4 system within educational settings, it's advisable to limit the variety of accounts or subscriptions to a minimum, ideally one per class level or type. This approach aids in maintaining organizational simplicity and enhances system management. Additionally, incorporating text-based detailed syllabuses, problem sets, and practice problems into the ETAS-4 system is highly recommended. Providing more specific and detailed data enables the creation of more focused and customizable models. For instance, in a problem set style class, a new model could be rolled out after every problem set is discussed, ensuring the system is immediately updated to include the latest information. This model would be immediately updated to reflect the latest class inputs, ensuring that the AI's responses and capabilities are continuously refined and aligned with the current educational content. This strategy not only enriches the educational content but also ensures that the system remains current and highly relevant to the students' learning journey.

Application and Rollout Best Practices

When integrating the ETAS system into an educational setting, it's important to consider how it will be used in conjunction with traditional teaching methods and assessments. To ensure its effective application and maximize its benefits, consider the following best practices:

- Minimize Online Graded Assignments
    - If the ETAS system is continuously accessible, it's advisable to limit the number of graded assignments that are completed online. This approach encourages students to use the system as a learning aid rather than a means to complete assessments, fostering a deeper engagement with the material.
- Monitor Student Activity:
    - Regularly review the activity within student accounts to gain insights into their learning patterns, areas of difficulty, and how effectively they are using the system. This monitoring can help in providing targeted support and feedback.
- Adapt to Classroom Dynamics:
    - Recognize that every class has its unique characteristics. Start with the ETAS system's suggested practices but be prepared to adapt its use based on the

evolving needs of your students and the specific dynamics of your classroom. Flexibility is key to tailoring the learning experience to best fit your students.

- Incorporate Collaborative Learning:
    - Encourage students to use the ETAS system as a collaborative tool, where they can work together on problem-solving and projects. This not only enhances their understanding of the material but also develops important teamwork skills.
- Provide Training Sessions:
    - Offer training sessions for both teachers and students to familiarize them with the ETAS system's features and capabilities. Ensuring that all users are comfortable with the technology will lead to more effective and efficient use.
- Integrate with Curriculum Planning:
    - Seamlessly integrate the ETAS system into your curriculum planning, using it to complement existing lesson plans and learning objectives. This integration ensures that the system supports the educational goals and enhances the overall learning experience.
- Encourage Reflective Learning:
    - Use the ETAS system to promote reflective learning practices among students. Encourage them to review their problem-solving processes and understandings, which can lead to deeper insights and personal growth in their learning journey.

By following these best practices, educators can effectively roll out the ETAS system in their classrooms, enhancing the educational experience while maintaining a focus on developing critical thinking and problem-solving skills among students

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Tutors

Math

In mathematics education, the emphasis should be on developing learning and problem-solving skills rather than merely achieving correct answers. In math, the ETAS-4 guidelines will show how to use custom GPTs to create personalized tutors tailored to specific units, problem sets, semesters, etc, to create equity when it comes to external support and give teachers control again when it comes to how resources are used outside of the classroom. The goal is to guide students towards understanding concepts and methodologies, fostering an environment where mistakes are seen as learning opportunities. By focusing on this approach, we aim to regulate the use of technology in education, steering students away from reliance on

answer generators like Wolfram or Chegg. Instead, we advocate for services that enhance the educational experience by providing prodding questions or step-by-step problem-solving guidance, similar to a teacher's instruction. This program gives control back to the teachers, ensuring that they can control how their students interact and use external resources after school ends. In other words, this not only extends the teacher's capabilities beyond the classroom but also encourages students to engage deeply with the material, promoting a more thorough and nuanced understanding of mathematical principles.

Benefits:

- Support for students:
    - This method ensures students receive the guidance and encouragement they need to tackle challenging problems, building confidence and independence in their learning journey.
- Amplifying problem-solving approach:
    - By prioritizing problem-solving skills, students are equipped to approach complex situations with a strategic and analytical mindset, enhancing their ability to navigate various challenges.
- Promoting ethical applications of AI:
    - Encouraging the responsible use of AI in education fosters an understanding of the technology's potential and limitations, preparing students to make ethical decisions in its application.
- Enhancing conceptual understanding:
    - This approach emphasizes grasping underlying mathematical concepts rather than just memorizing formulas or algorithms, leading to a deeper understanding of the subject matter.
- Fostering critical thinking:
    - By focusing on problem-solving and critical analysis, students are encouraged to think more deeply about mathematical problems, enhancing their critical thinking skills.
- Personalized learning experiences:
    - Tailoring the use of technology to support individual learning styles and needs ensures that students can learn at their own pace and in a way that best suits them.
- Reducing overreliance on technology:
    - By regulating the use of technology, students learn to use it as a tool for learning rather than a crutch, promoting a healthier relationship with technological aids.
- Empowering teachers:
    - Giving control back to teachers over how technology is used in education allows them to tailor their teaching strategies more effectively to their students' needs.

Answers to General Concerns:

How would this help with teaching? What is the point?

- This approach aids teaching by shifting the focus from merely obtaining correct answers to understanding the process and reasoning behind mathematical concepts. It encourages students to develop critical thinking and problem-solving skills, which are essential for academic and real-world success.

Will this provide too much information too soon?

- Guardrails designed to mimic how a student would receive help during a conference on a problem are instituted to sustain the emphasis on problem solving
- Teachers can tailor the system to their preferences:
    - the system can be updated with the latest problem set after going over it in class, or after the last problem set of the unit, the system can be released to serve as a test review tool

Will students the following year be able to gain access to the fully developed system?

- No, students can only access the system through a designated link; after the class ends, the system can be shut down and reinstated for the following year, ensuring that each class has a tailored and controlled learning environment.

Will students be able to cheat on homework?

- The system's design includes mechanisms to prevent straightforward cheating. By focusing on guiding questions and problem-solving processes rather than direct answers, the system encourages genuine engagement with the material. Furthermore, the ability for teachers to customize and control access helps mitigate the risk of misuse for homework cheating.
    - However, the use of one of these tools in concurrence with online style homework (such as Moodle) could lead to cheating.

Will students become focused on getting answers rather than the process?

- The core principle of the system is to reinforce the importance of the problem-solving process over simply finding the correct answer. By providing step-by-step guidance and encouraging reflective thinking, the system aims to cultivate a mindset where the process is valued as much as the outcome, helping students to appreciate the journey of learning and discovery in mathematics.

Specific Best Practices:

- Diverse Assessment Methods:

    - Avoid reliance on online graded homework as the sole assessment method, as it's prone to cheating. Incorporate a variety of assessment types, such as project-based assignments, in-class activities, and oral presentations, to provide a comprehensive evaluation of student understanding.
- Model Release Strategy:
    - When using AI or technology-based learning tools, ensure to release educational content models only after the assessment period. This approach prevents misuse of the models for cheating and encourages genuine learning and problem-solving.
- Encourage Academic Integrity:
    - Foster a culture of integrity and honesty by clearly communicating academic policies and the consequences of cheating. Regularly discuss the importance of original work and the learning value of facing challenges without resorting to dishonest means.
- In-Class Assessments:
    - Make the majority of grading based on in-class assessments, such as quizzes, oral presentations, and group projects. This approach minimizes the risk of cheating and ensures that assessments accurately reflect individual student understanding and skills.

Instructions/Requirements for Deployment

Advisors:

History

Benefits:

- Writing assistance:
    - Similar to an English Advisor, a History Advisor would provide feedback on writing assignments and check if they are logical, coherent, or even repetitive. Could offer guidance in structuring essays/papers, reworking and developing strong thesis statements, and help students improve their analytical skills.
- Research skills:
    - Provides guidance on conducting research for projects and/or essays, including teaching effective strategies for researching online or in databases, as well as

evaluating sources for reliability or bias. Teaches proper citation methods, whether it be MLA, Chicago, or others according to the specific class.

- Counterarguments:
    - A subsection of writing assistance, the advisor would assist students in addressing potential counterarguments to their thesis/argument, helping them strengthen their thesis-building skills
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Answers to General Concerns:

How does this help students grow?

- This advisor would aid students in their individual learning processes regarding writing. Providing real time assitance and recommendations on grammar, style, coherence, and overall structure will help students improve their writing skills as the year progresses. Students will be able to learn from the mistakes they make and will receive immediate feedback that will allow them to gradually refine their writing skills.

Will students simply be able to input the prompt and generate an essay?

- Simply put, no. With specific guardrails implemented, students will not be able to just input an assignment and its prompt and generate an answer or paper. They will only be able to input sections of their assignments and receive feedback, or ask questions about formatting citations, the structure of their paper, etc. in addition to getting aid in starting preliminary research of their topics.

Will this cause students to heavily rely on AI?

- The AI Advisor is meant to be a supplementary tool, rather than the sole source of information. The AI will be able to aid students in starting their research and developing their thoughts, but will not complete their assignments for them. The idea is for the advisor to take what the student has written and provide insightful feedback and guidance. In this way, the advisor will serve as a supportive mentor, rather than a passive information spewer.

Specific Best Practices:

- Necessary Advisor:
    - Be sure not to have the advisor available for every single assignment, as that may promote a reliance on AI to complete work. Only utilize the advisor for large projects like essays or big group projects that require research.

Instructions/Requirements for Deployment

Coming Soon

~~**Science**~~

~~**English**~~

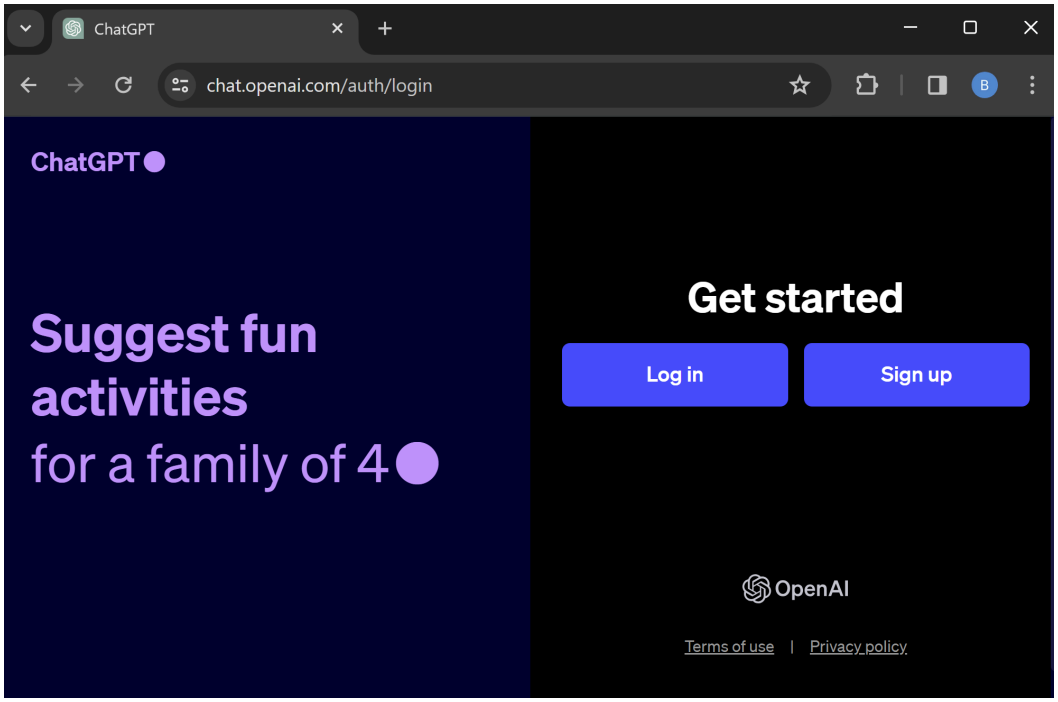
~~**Foreign Language**~~

Tutorials:

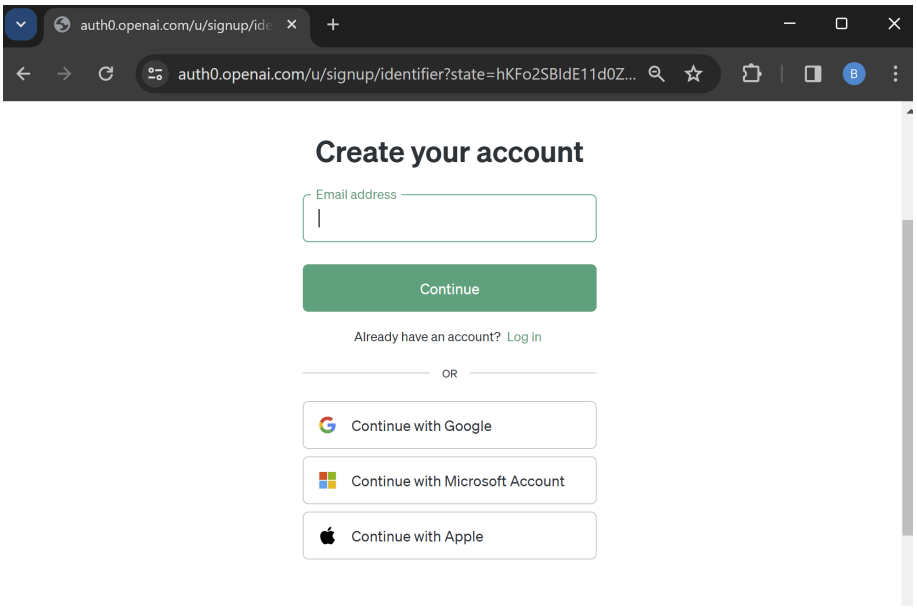
Universal

Creating an Account:

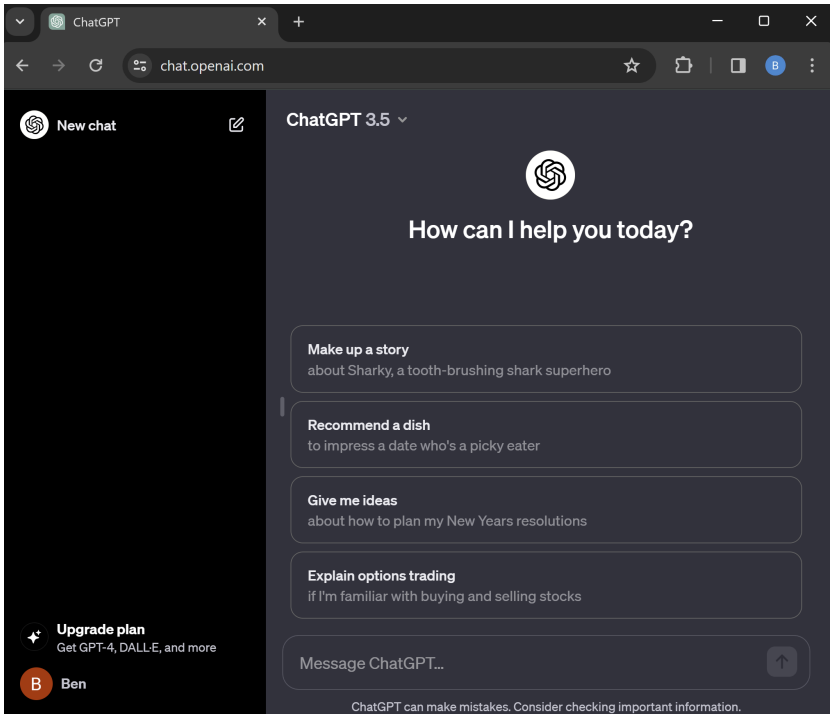
1. **Go to chat.openai.com**
2. **Click Sign up *OR* Log in**



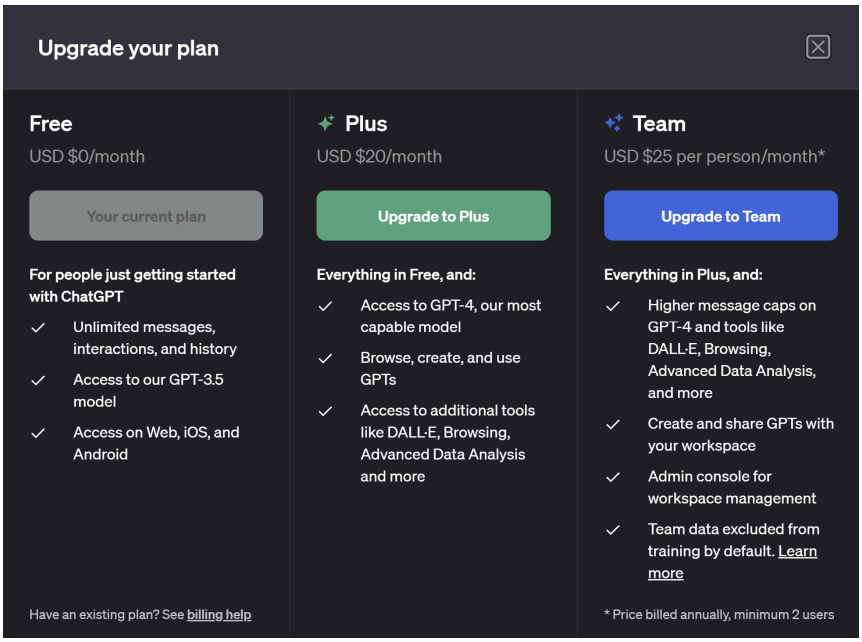
3. ***IF*** **signing up, we recommend signing up with Google in order to synchronize with Google Workspace/G suite**



4. **Once logged into Chat GPT, click on *Upgrade plan* to unlock custom GPTs**

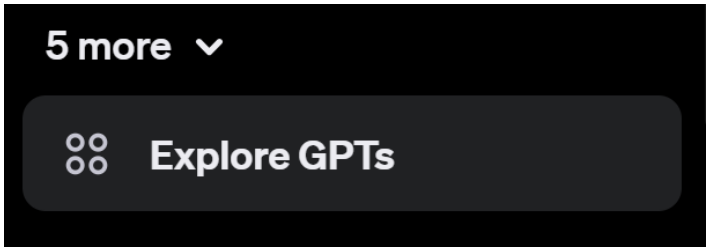


5. **In order for students to be able to access - they must either each have GPT Plus account (in which case an administrator would only need a Plus account themselves) *OR* ***preferred*** 2 team accounts could be used (1 for models and 1 for students to share)**

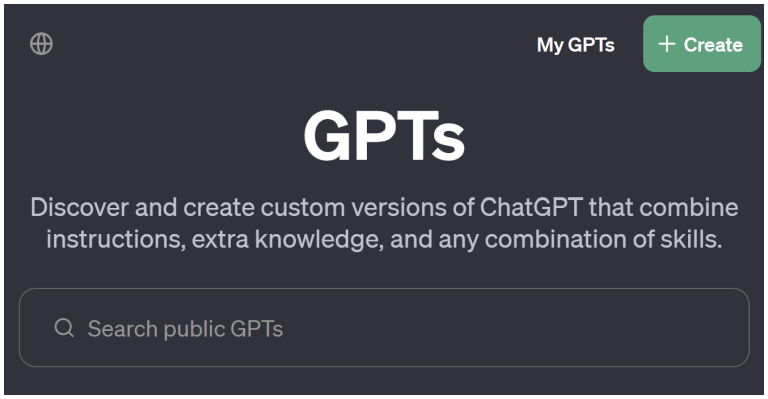


Creating a Custom GPT:

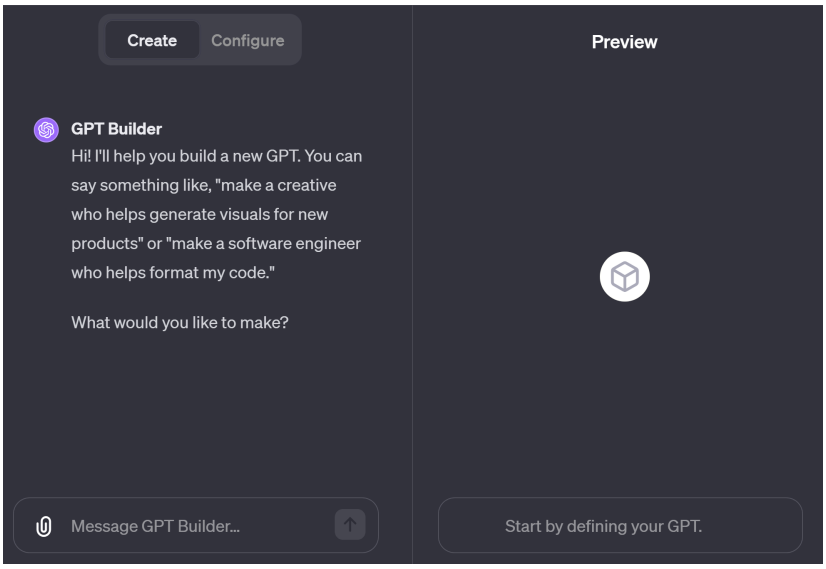
1. **Once Plus/Teams/Enterprise Accounts are set up, one can proceed to create a custom GPT - select Explore GPTs**



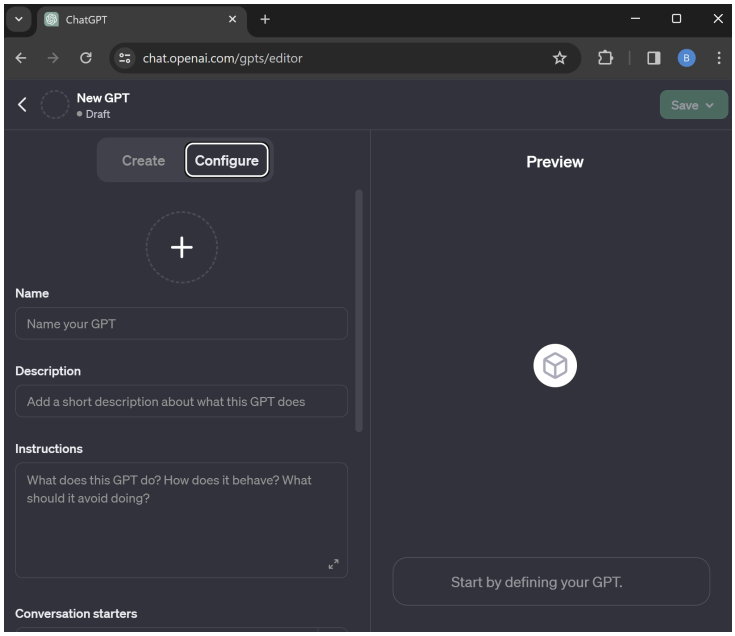
2. **Select + *Create***



3. **Now begin creating your GPT by explaining the GPTs purpose to the chatbot (see examples further below).**



4. **Now move to the *Configure* tab to further customize the ETAS bot.**



Adding Knowledge/Background:

1. **Start by creating clear, concise, and specific instructions for what the bot should do in order to ensure good-quality responses that respect academic integrity**
2. ****IMPORTANT** Please upload to the *Knowledge* section as many curricula, background, problem set, and pdf documents as possible to ensure that the bot understands the context and purpose of the class**
    - If GPT is slow at checking background knowledge, try using models for each unit instead

Adding Conversation Starters:

1. **Add conversation starters that promote positive uses of AI (learning rather than getting answers), ensuring that students' learning is augmented by AI and not hindered.**
    - **“Give me advice on ….”**
    - **“What could I do differently here: …..”**
    - **“What are some perspectives I am missing ….”**
    - ~~**“Solve this ….”**~~
    - ~~**“Give me the answer for question ….”**~~

Adding Actions:

If interested in further customizing GPTs, we highly recommend using Actions, which call other services outside of ChatGPT to do tasks. Find below instructions on how to add custom actions for specific types of classes.

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~~Math~~

~~Extra Requirements:~~

~~Instruction Template:~~

~~Suggested Conversation Starters:~~

~~Custom Actions:~~

~~Sciences (Except Physics) - Example AP Chemistry~~

~~Extra Requirements:~~

~~Instruction Template:~~

~~Suggested/Universal Knowledge/Background:~~

~~Suggested Conversation Starters:~~

~~Custom Actions:~~

~~English~~

~~Instruction Template:~~

~~Suggested Conversation Starters:~~

~~History~~

~~Instruction Template:~~

~~Suggested Conversation Starters:~~

~~Computer Science~~

~~Instruction Template:~~

~~Suggested Conversation Starters:~~