Application Utrecht Education Incentive Fund 2023/2024– faculty part

Utrecht University attaches great value to educational innovation and wants to value excellent education and good teaching. To stimulate this, the Utrecht Education Incentive Fund has been in existence since 2013. Annually, two million euros are available to support educational talent and educational innovations, one million in the faculty compartment and one million in the university compartment.

These innovations can, for example, focus on of interdisciplinary education, diversity and inclusion, activating learning, didactics and testing, and honours education. This is an additional incentive for projects that transcend the normal evaluation and improvement cycle.

The Utrechts Stimuleringsfonds Onderwijs consists of two parts, a faculty part and a university part.

Faculty component

1. Projects
One million Euros is available annually for this purpose. Our faculty receives a portion of this funding based on student numbers (EUR 175,000 for 2023/2024).

The Bachelor's/ Master's Director submits one or more project proposal(s). In total maximum EUR 24,000 per programme. The Dean, in consultation with the Vice Dean and the Boards of Studies determines the final amount to be spent on. It is intended for FSBS projects between EUR 5,000 and EUR 24,000.

The amount will be used for projects:
- for a teaching team, both for the team's teaching qualities as well as for the joint tasks in the curriculum;
- that strengthen 'learning communities' by deploying moderators for specific subjects;
- that improve the teaching: the greater the impact, the better;
- that make concrete contributions to the sharing of knowledge;
- that last no more than three years.

2. Submitting a proposal
By filling in this form you can submit a proposal for the fund's faculty component:

- If you and/or your colleagues (which may include colleagues from other departments) have an idea that meets the above criteria, then fill out this this form before **1 March 2023** in consultation with the Bachelor's Director/Master's Director or Research Master. The Director will prioritise the proposals.
- **March 1st 2023**, all the proposals must have been submitted by sending an email to Jacqueline van Lier, J.J.VanLier@uu.nl.

- **Please note**: this deadline also applies to applications submitted as a follow-up to an already existing project (even if the request concerns only the ERP hours).
- On **March 8th** (and possibly the Board of March 22nd), the Board of Studies (Undergraduate and Graduate) will discuss the applications to check there is no overlap and/or possible combinations of project proposals and to agree on a final proposal for presentation to the Faculty Board for approval in April.

3. ERP hours

The ERP hours are linked to the projects on which incentive fund money is spent.
https://intranet.uu.nl/en/educational-resources-pool

Questions when filling in the ERP hours? Do you have questions while filling in the amount of EMP hours? In preparation for the submission of an application a consultation with the faculty ERP coordinator Willemijn Schot (Educational Consultancy & Professional Development, W.D.Schot@uu.nl) can be requested to pay attention to:
- Have there already been similar projects elsewhere, in which relevant information can be retrieved, or where a combination of projects is possible;
- How do you put the project together in a 'project-based' way, with a strong reference to later implementation and dissemination.

Questions? Please contact Jacqueline van Lier, J.J.VanLier@uu.nl.

Proposal Utrecht Education Incentive Fund 2023/2024 – Faculty component

Bachelor/ Master's director	Rens van der Schoot
Name programme	Methodology and Statistics for the Behavioural, Biomedical and Social Sciences.
Name Department *When filling in the name of the programme, the requested amount also goes to this programme/ department. In case of a faculty project, please indicate how the budget should be divided among the programmes.*	Methodology & Statistics
Titel project	Can an AI obtain a master's degree? An investigation into AI-assisted education in the MSBBSS Research Master's programme.
Project leader	Gerko Vink, Associate Professor
Project members	*Anne Scheel, Assistant Professor* *Oisín Ryan, Postdoctoral Researcher*
Duration of the project *start- and end date; maximum duration 3 years*	*12 months (1 years)* *Start 1 Sept 2023* *End 31 Aug 2024*
Short description of the project	*Please give a short explanation at number 1 tm 4*
1. ***Purpose of the project***	*This project proposes to run two distinct AI language models as potential `student candidates` through the Methodology and Statistics in the Behavioural, Biomedical and Social Sciences research master at Utrecht University's School of Social and Behavioral Sciences. To highlight the timeliness and seriousness of our proposal and the potential impact our findings could have on the validity of our academic testing, most of the content in Box 1 of this proposal has not been written by the project team but has been generated by the chatGPT and Perplexity.ai language models. The recordings of the interactions with these models and conversation*

transcripts can be found at www.gerkovink.com/FUSO2023. All AI-generated text is highlighted in grey.

The UU board proposes to record in the new OER the requirement for students to disclose the use of AI language models[1]. Therefore, we also disclose that we have used AI language models in generating this proposal text. More specifically, we have asked the chatGPT[2] and Perplexity.AI[3] language models whether an AI could be able to pass a master's programme. The response was:

Yes, an AI can pass an academic master's programme. A professor at the University of Pennsylvania's Wharton School found that the artificial intelligence-driven chatbot GPT-3 was able to pass the final exam for the school's Master of Business Administration (MBA) program[4]. The bot scored between a B- and B on the exam, showing its remarkable ability to automate some of the skills of highly compensated knowledge workers in general and specifically the knowledge workers in jobs held by MBA graduates including analysts, managers, and consultants.

The bad?
The emergence of AI-assisted learning presents new opportunities and challenges for teachers to design effective evaluations and assessments that measure students' learning progress in a way that reflects their unique contributions and effort.
One approach could be to modify existing evaluation methods to include a requirement for students to demonstrate their understanding and critical thinking skills in addition to finding sources. For example, you could ask students to write a critical analysis of the sources they found using e.g., ChatGPT, or to apply the concepts and theories they learned to real-world scenarios.
Another approach is to design evaluations that cannot be easily

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[1] https://dub.uu.nl/nl/achtergrond/universiteit-scherpt-plagiaatregels-aan-om-chatgpt
[2] https://openai.com/blog/chatgpt/
[3] https://www.perplexity.ai
[4] https://www.nbcnews.com/tech/tech-news/chatgpt-passes-mba-exam-wharton-professor-rcna67036

replicated by an AI language model. This could involve creating problem-solving scenarios that require students to draw on their understanding of the material to identify and analyse various solutions. You could also ask students to engage in debates, simulations or role-play activities that require them to apply their knowledge and skills in real-life situations.

The good

While educators often focus on the immediate impact any AI language models can have on testing, the benefits of learning together with an AI are easily overlooked. AI-assisted learning has been shown to improve student performance[56]. Cheng et al. developed an AI-augmented teaching program for medical students in detecting hip fractures and found significantly higher post-learning accuracy in the AI-assisted group[5]. A study of AI precision education at Dong Hwa University found that the AI precision education model may facilitate students' learning experience and enhance student achievement[6]. The study employed drawing and co-word analysis techniques to explore students' preferences for AI-assisted learning environments, with more than half of the students agreeing that robots play important roles in AI-assisted learning[7].

AI-assisted foreign language education costs less, incites learners' interests, and improves efficiency compared with traditional foreign language education[8]. However, most experts agree that human teachers are still the most important ingredient to learning. Companies like Carnegie Learning, ALO7, and Sana Labs show how AI can help adapt to individual student needs, free up teacher time by streamlining administrative tasks, and more[5].

[5] Cheng, CT., Chen, CC., Fu, CY. *et al.* Artificial intelligence-based education assists medical students' interpretation of hip fracture. *Insights Imaging* **11**, 119 (2020). https://doi.org/10.1186/s13244-020-00932-0

[6] Lin, Y. S., & Lai, Y. H. (2021). Analysis of ai precision education strategy for small private online courses. *Frontiers in Psychology*, *12*, 749629.

[7] Lai, C.-L. (2021). Exploring University Students'Preferences for AI-Assisted Learning Environment: A Drawing Analysis with Activity Theory Framework. *Educational Technology & Society*, *24*(4), 1–15. https://www.jstor.org/stable/48629241

[8] Aihua, Z. (2021, March). New ecology of AI-assisted language education. In *Journal of Physics: Conference Series* (Vol. 1861, No. 1)

	Aim of this proposal
	We propose to run the GitHub Co-pilot[9] and chatGPT language models through the research master's programme MSBBSS. We specifically focus on these language models as they allow for data science pipelines and include the formulation of scripting and programming languages, such as R and Python. Such languages form an integral part of the testing and assessment in the master's curriculum. When we asked chatGPT whether it would pass a statistics master's programme, its response was:
	It is important to note that AI, including language models like myself and GitHub Co-pilot, have limitations in terms of the scope and depth of knowledge they can access and understand. While AI can process vast amounts of information quickly and efficiently, it may not be able to fully comprehend or apply the concepts and theories required for a master's level education in statistics.
	Additionally, evaluating an AI's ability to pass a master's program in statistics would require carefully defining the evaluation criteria, and designing assessments and tests that can accurately measure the AI's understanding and application of the material. It may also be necessary to develop new evaluation metrics or methods that are specifically tailored to assessing AI learning and performance.
	While it is not our wish to allow for an AI as a real student, the suggested course of action is very close to our aim: Investigate 1) how AI-assisted learning impacts the evaluation of student's work and validity of our master's diploma, 2) study the necessary evaluation and rubric adjustment to allow for AI-assisted learning, and 3) explore whether AI-assisted learning can benefit student performance and realize a steeper learning curve.
2. Target results	1. *Run GitHub co-pilot and chatGPT as a student pair through the MSBBSS research master's programme. What grades would the*

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	student pair get and what percentage of course work can be successfully completed?
	2. *Classify per course the AI student pair performance and investigate whether there is a relation between specific types of course work, assignment, rubrics, and course performance. In short, is there a type of work on which the AI performs well or not well?*
	3. *Submit a manuscript for publication that outlines the taken procedure, presents our analyses, summarizes our findings, and proposes guidelines for educators with respect to the challenges and opportunities in AI-assisted learning for a (statistics) master's programme.*
	4. *Design a short workshop together with OA&T to present our findings and share our experience and tips with other educators at Utrecht University. A good opportunity would e.g., be the Onderwijsfestival 2024. Preferably, we would design a Small Private Online Course module to share our findings beyond Utrecht University.*
3. Dissemination *Would a different programme, department or faculty be helped with the findings/results of this project?*	*This project can directly impact any education within social and behavioural sciences, and beyond. Hands-on experience is needed about how to efficiently allow for AI-assisted learning, and what specific choices, opportunities and vulnerabilities would arise from including AI language models as `co-students`. The project is set to run for only 12 months, as we believe that AI-assisted learning research is timely and experience on incorporating it into academic education is a pressing issue; not just for our department.*
4. Consolidation *How do you intend to consolidate the findings or results of the project in the department after it is finished?*	*Embedding our findings and results into the growing expertise on AI-assisted learning at OA&T and designing a workshop/online module will allow for a sustainable inclusion of the results of our project within the educational expertise at Utrecht University. Our project will be fully open on GitHub from the start, with recordings and transcripts of all conversations with the AI-language models. All analyses, code and a full publication archive will be on the project GitHub repository.*

Budget proposal *€5k – €24.000* *1. Funds intended for extra overhead or purchase of IT- or research equipment cannot be submitted under this proposal.* *2. Assigned budgets are not transmittable to subsequenting years.* *3. Please consult your 'afdelingsmanager'. If your proposal gets granted the teaching hours need to be allocated in the teachingload 2023-2024*	Total budget requested: €15,000 Gerko Vink 60h 3840 Anne Scheel 60h 2820 Oisín Ryan 60h 2940 Student assistant 200h 5400 Total 380h 15000 A chatGPT plus subscription will be provided by Gerko Vink.
ERP hours *1. Please indicate the number of hours for the first year (for the second/ third year please submit a new application using this form)* *2. Hours from the Educational Resources Pool, are hours that are requested to have an educational advisor think along in the project.*	Yes; 80 hours
Expertise related to the ERP hours *Please indicate what kind of expertise is required of the O&T department, for more information: Willemijn Schot (Educational Consultancy & Professional Development, W.D.Schot@uu.nl)*	*The ERP-related aim of our proposal is to design an educational workshop and/or SPOC module that incites critical thinking about AI-assisted education and focuses on learning gains and provides guidelines and proof of AI-unassisted testing means. Someone with experience or affinity with AI-assisted or digital learning would be preferable. This has been discussed with Carolijn Ouwehand and – when funded - she will match us with a proper candidate from OA&T.*