

HA8401H – Satisfaction survey (2023-2024)

Course name. Differential calculus & multivariable integration.

Institution. Engineering school Polytech Montpellier.

Audience. Engineering students.

Level. Preparatory cycle (2nd year of B.Sc).

Role. Tutorial classes, coding, pseudo-exams writing and marking.

Contents

Chap. 1 – Introduction and basic concepts

Introduction to multivariable functions, including definitions, examples, graphs, level sets, and partial functions. Basics of vector functions and parametric curves, including vector fields.

Chap. 2 – Parametric curves

Study of single-variable vector functions, covering limits, continuity, and differentiability. Definitions, examples, kinematic interpretation, length, and curvature of parametric curves. Local study of parametric arcs.

Chap. 3 – Geometry and topology in \mathbb{R}^n

Exploration of norms and distances in \mathbb{R}^n , including definitions, examples, open/closed balls, and equivalent norms. Continuity concepts, sequential characterization, and operations. Introduction to elementary topology such as open/closed sets, compactness, and arc connectivity. Discussion on scalar products and Euclidean norms.

Chap. 4 – Differential calculus in \mathbb{R}^n

Differentiability in \mathbb{R}^n , including partial functions, partial derivatives, gradient vectors, and Jacobian matrices. Overview of C^1 class functions, their properties, diffeomorphisms, and implicit functions. Higher-order derivatives, Taylor's formula, Hessian matrix, and study of local extrema.

Chap. 5 – Multiple integrals

Review of single integral concepts and construction of Riemann integrals. Double integrals over rectangles, elementary and simple regions, and properties. Triple integrals over cuboids and summation methods. Change of variables formula for double and triple integrals. Definitions and properties of vector field circulation.

Objectives. In pursuit of my doctoral degree and with aspirations of becoming a university lecturer, I have initiated this satisfaction survey primarily to gather valuable feedback from students. This feedback is essential for assessing the effectiveness of my teaching methods and for facilitating my continuous professional development in academia. By engaging directly with student responses, I aim to refine and enhance my instructional techniques, ensuring that they meet the high standards expected in educational environments.

Moreover, this survey serves a secondary, yet crucial, purpose of providing potential recruiters with a transparent view of my teaching capabilities, as directly experienced by students. It offers an authentic insight into the qualitative aspects of my pedagogical approach, including clarity of instruction, relevance of materials used, effectiveness of the sessions, and overall student engagement and satisfaction.

The reader can find all the results in following pages, on a group of 30 students (34 in total).

Pedagogical method. My educational strategy emphasizes interactive, group-based problem-solving to boost both understanding and student involvement. In small groups, students prepare and initially present their exercises at the board to me. This interactive setup ensures that each student comprehensively understands and correctly executes the material, as I provide guidance and engage with each group member during their presentation.

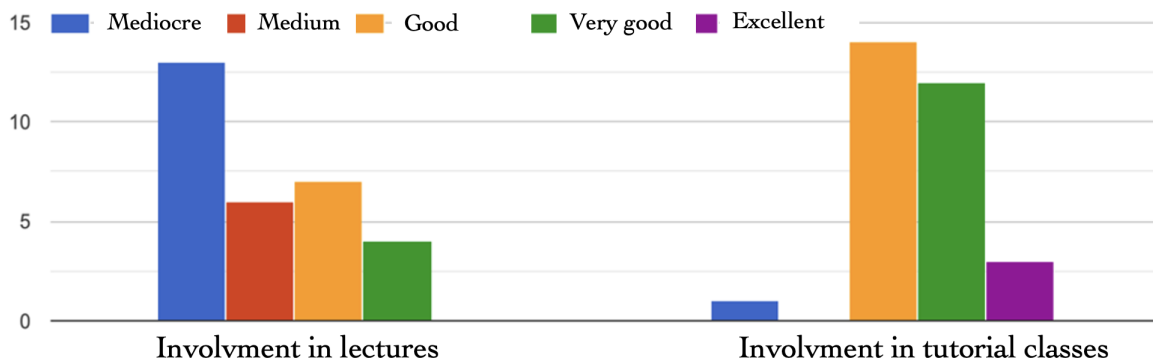
Subsequently, the groups articulate their solutions to their classmates, promoting effective communication and enhancing their mastery of the subject through peer instruction.

Furthermore, I regularly integrate quizzes and controlled assessments into the curriculum to better prepare students for examinations. These assessments, which can contribute bonus points to midterm scores, serve not only to maintain ongoing student engagement but also to offer immediate feedback, thereby facilitating the timely identification and resolution of any educational challenges.

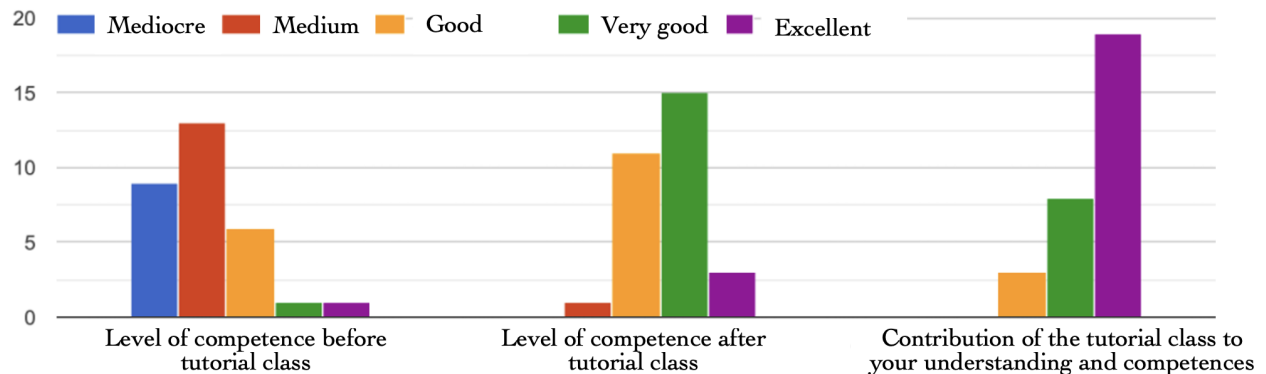
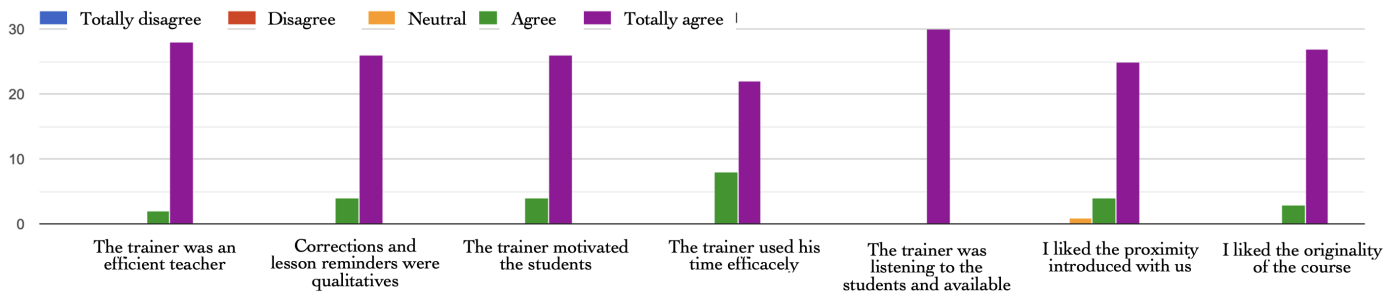
Survey results.

Final grade for my teachings : **9.32/10**.

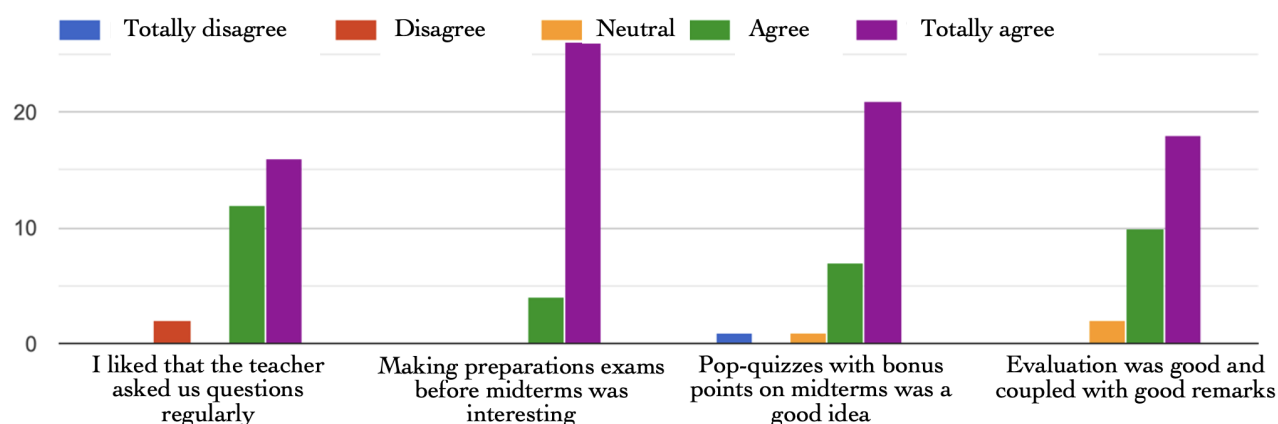
Level of involvment



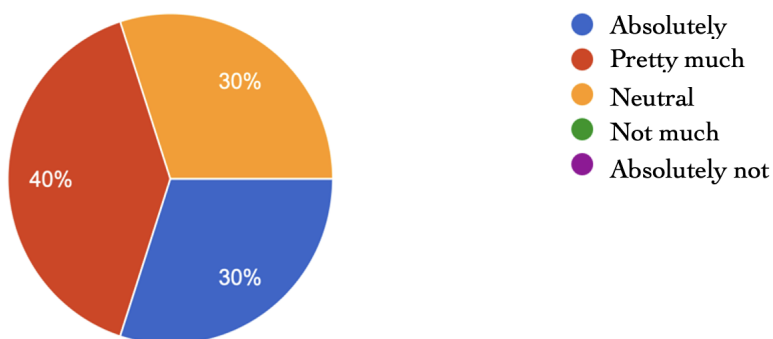
Competence and responsiveness of the trainer



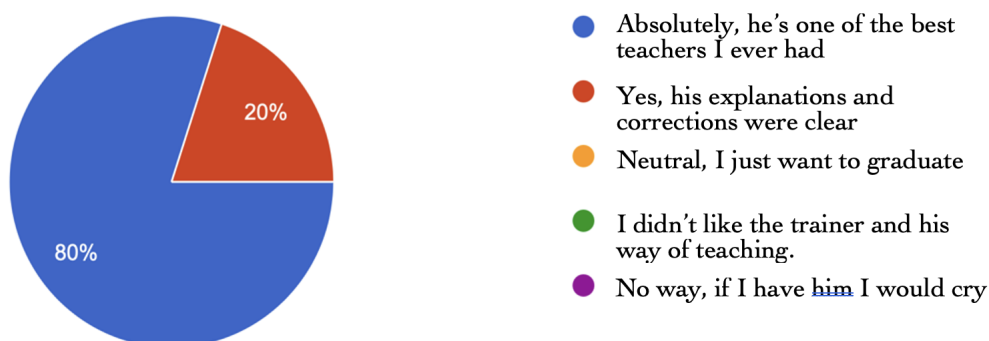
Evaluation



Has your vision of mathematics evolved positively between the beginning and the end of tutorial class?



Would you like to one day have your teacher back in lectures/tutorial classes?



Positive aspects.

1. **Course reviews** : My students particularly appreciate the course reviews at the beginning of each session. This helps those who do not remember the concepts or who did not attend the lectures to get up to date and understand the methods to be used.
2. **Efficiency and speed** : The speed with which my handle the tutorials is highly appreciated. Students like that you can cover bonus exercises and mock exams, which prepares them well for the exams.
3. **Interactive methods** : Having students work in groups at the board is seen as an effective method to force greater involvement. This encourages participation and active understanding of the concepts.
4. **Mock exams and bonus tests** : These elements are often mentioned as valuable tools for regularly testing, correcting mistakes, and preparing effectively for exams.
5. **Corrections and explanations** : My detailed explanations and the corrections sent by email are very useful for the students. They appreciate the clarity and availability of these resources.
6. **Approachable attitude** : Many students mention my ability to understand their workload and adapt my teaching accordingly. My closeness to the students and positive interaction are widely recognized.
7. **Passion for teaching** : Students highlight my passion for mathematics and my desire to share my knowledge. They feel encouraged and motivated by my enthusiasm and involvement.

Suggestions for improvement.

1. **Authority and discipline** : Several students suggest that I could be a bit stricter to maintain a calm and conducive atmosphere for learning. Some have mentioned noise in the class as a recurring issue.
2. **Board participation** : Although the board method is effective, some students feel less involved when they are not directly engaged in the exercise. It might be beneficial to find ways to engage them more even when they are not at the board.
3. **Interaction and proximity** : Even though the interactive approach is generally appreciated, a few students noted that I could sometimes establish a clearer boundary between the professor and the students to maintain a certain level of respect and concentration.

Personal note.

As I reflect on my first experience teaching, I am filled with pride and gratitude for my students. Despite the challenges that come with any learning journey, they made tremendous efforts throughout the semester. Their dedication and hard work were evident in their consistent engagement and performance in class.

One of the highlights of this experience was the warm and appreciative nature of the students. At the end of the semester, they surprised me with candies and a gift card as a token of their gratitude. This gesture was incredibly touching and reaffirmed my commitment to teaching. It also illustrated the strong bond and mutual respect that developed over the course of our time together.

Overall, this teaching experience has been deeply rewarding. I am grateful for the opportunity to have taught such a wonderful group and look forward to continuing my journey as a teacher.

Some of the nicest comments (traduced).

- "I was planning to send you a message at the end of the semester to tell you that you are probably the best professor I have had personally. Your proximity to us and your efficiency in the exercises and in making us understand is really good. You always make sure everyone understands, and if not, you do everything you can to make sure the person understands. And despite all this, the TD is moving super fast without seeming to be going fast (honestly, I'm shocked to know that we're so far ahead). I really think you are made for this. And I am very disappointed to have only had you for half a semester, I would really have liked to have you for my next years [...]"
- "Honestly, I have never had a better teacher than you since my higher education. (I searched and couldn't find any improvement)."

- "It was perfect, I don't think I've ever had a teacher who was so involved and passionate about his subject."
- "To be honest, the answer to the question above is pretty fair ; you are probably one of the best TD teachers I have had since arriving at university. You involve the students sufficiently and seem close/open enough, which is the complete opposite of the distant teacher who spends 1.5 hours coldly correcting the exercises on the board without saying a word, therefore who is quite pleasant and who generates a rather quiet atmosphere in your course that make you want to take an interest in it. I don't necessarily see anything to improve, you're on top, keep it up and good luck on your journey."
- "In all honesty, you are by far the best TD supervisor I have had. You managed to motivate me to come to all your classes (even those at 8 a.m.) and to make me appreciate math again. I have never had a TD supervisor who was so involved and conscientious about the success of his students. There is no doubt in my mind that you will make an excellent teacher."
- "There couldn't be a better teacher, it's the first time that I feel so listened to and supported by a teacher, it's good to feel that he is not there out of spite but that he sincerely wishes help us."
- "The best teacher I had over these 2 years at Polytech Montpellier. Being a Ph.D student clearly helps the teacher to understand the students' vision of exos and to provide us with effective methods to understand and pass the exams."
- "Very stylish outfits ;-) Otherwise I greatly appreciate the closeness that you are trying to establish, we feel that you want to do your best if only by asking us our feelings or just remembering our first names (very very few teachers take the trouble)."