

Experience in Advanced Mathematics Teaching in Economic and Management Majors

Ziping Li

College of Mathematics and Physics, West Yunnan University, Yunnan Lincang, China

791676584@qq.com

Keywords: Economic management majors; Advanced mathematics; Teaching experience; Teaching methods; Teaching means

Abstract: In order to improve students' enthusiasm for studying advanced mathematics and highlight the applicability of subject majors, this paper summarizes some experiences in the teaching of higher mathematics in economics and management with the author's teaching practice, and talks about some teaching experiences.

The Advanced Mathematics Course is an essential basic course and tool course for students majoring in science and engineering and economics in colleges and universities. Through the study of this course, for students to learn the follow-up professional courses and digest understanding of professional knowledge, solve practical problems, improve self-learning ability to provide the necessary mathematical basic knowledge and commonly used mathematical methods.

The characteristics of the advanced mathematics curriculum are: a large amount of content, a wide coverage, a small number of teaching hours, and a high degree of difficulty. At the same time, the course has a high degree of abstraction, rigorous logic and wide applicability. It also plays an important role in cultivating students' logical thinking ability. According to the characteristics of the course, how the teacher let students to acquire the obtain the mathematics knowledge and mathematics thoughts required by the major in the limited time is the question that the teacher should think about.

To this end, the following combines my teaching experience, to talk about some teaching experience of higher mathematics in economics and management.

1. Pay Attention to the Teaching of the First Class

The arrangement of the first class of advanced mathematics is very important, and its teaching effect is directly related to the learning effect of this course. Due to the limited class time, many teachers ignore the teaching of the first class in teaching because it does not seem to be closely related to the later courses. In fact, the first class has a very significant impact on students' learning attitude, interest in learning, enthusiasm for learning, and learning outcomes. If you speak well in the first class, you can do more with less. Therefore, the first class can arrange the teaching content from the following aspects.

1.1 Introduction to the Development of Mathematics and the Latest Results.

By introducing the development of mathematics and the latest achievements, students can understand the most advanced mathematical dynamics and feel the power of mathematics.

1.2 Introduction to the Significance of the Opening of This Course.

Some students in economics and management majors have misunderstandings and behaviors in the study of advanced mathematics. Some students believe that higher mathematics is a symbolic formula and theorem. It has nothing to do with the profession. It doesn't matter if the students do not learn. Some students feel that mathematics is boring and lacks the interest of learning. They give up their own and give up studying in higher mathematics. In this case, the teacher will tell the

students the importance of higher mathematics in the first class. In order to be persuasive, the teacher should have a comprehensive understanding of the application of higher mathematics in the economics and management majors, and then explain the application to the students. For example, in economic management, mathematical thinking, techniques and methods are widely applied. The cases in economic cybernetics, investment science, insurance actuarial science, decision analysis, and financial forecasting all use mathematical methods in higher mathematics. The use of mathematics in economics and management is full of vitality. Teachers can also give examples of their applications, such as the application of marginal and economic issues in the economy and the relationship with higher mathematics, so that students can define the purpose of learning, understand the meaning of learning, and understand the status of the curriculum.

1.3 Introduction to the Teaching Methods and Learning Methods of This Course.

Advanced mathematics is a course that students have just entered the university. The teaching methods and learning methods of university courses are different from those of high school. If students still use high school learning methods to study advanced mathematics, they cannot learn advanced mathematics. Therefore, in the first lesson, the teacher should tell the students about the difference between the teaching methods and learning methods of the university and high school, and introduce the teaching methods of the course and the corresponding learning methods of the students so that the students can learn effectively in the future study.

1.4 Introduction to the Learning Requirements and Assessment Methods of This Course.

Because the university curriculum is different from the high school curriculum requirements, the learning requirements and assessment methods are different. For advanced mathematics, teachers should explain the learning requirements and assessment methods to the students in the first class. This course is a professional basic course, which is the basis for the follow-up of professional courses. Therefore, the study requirements for this course should be stricter. For example, you should review before class, carefully remember while taking notes, and review after class. The homework, etc., as a comprehensive evaluation of the usual grades and final grades. In short, this course is more focused on the students' usual learning process and learning attitude.

1.5 Introduction to the Knowledge Framework of This Course.

In order to let the students systematically understand the content of the course, the teacher can introduce the knowledge structure of the course to the students in the first class. For example, the main content of advanced mathematics is calculus, the research object is a function, and the method of limit is used to study the differential and integral of the function. Through this introduction, the students are clarified the relationship between the content and the knowledge points to be learned in this course.

1.6 Review of Elementary Mathematical Knowledge Used in Advanced Mathematics.

Although advanced mathematics is different from high school mathematics, it is based on high school mathematics. Therefore, in the first lesson, teachers need to review the high school mathematics knowledge required in higher mathematics. Through reviewing, students are re-engaged after a summer vacation to help them bridge the gap between high school mathematics and university mathematics, eliminating students' fear of the course.

In short, the arrangement of the first class is good or bad. It plays an important role in the development of students' interest and learning methods. Teachers should be good at grasping the first class and lay a good foundation for future teaching.

2. Prepare Targeted and Practical Syllabuses and Handouts for the Characteristics of Students in Economic and Management Majors

At present, most of the existing advanced mathematics textbooks are too disciplined, too much content, too much emphasis on the rigor of mathematical logic and the rigor of mathematical

thinking, but few examples of practicality are less, and cases close to economic life involve Rarely, this is difficult for students who are weak in mathematics and whose mathematics ability is uneven. It is difficult to learn, and it also increases the difficulty of teaching, and it also dampens the enthusiasm of students. In order to improve the teaching quality of teachers and the enthusiasm of students, and highlight the practicality of this course, the teachers should be based on the training objectives of higher education, aiming at the characteristics of the management profession, based on the characteristics of practicality and pertinence, according to the actual situation of students, Prepare syllabuses and handouts of advanced mathematics courses.

In the development of the syllabus, it is necessary to use the "application for the purpose" and "necessary, sufficient for the degree", according to professional characteristics, to determine a feasible implementation outline. Teachers should be flexible in terms of the emphasis, order and time allocation of the lectures and other aspects. In this way, the teaching of higher mathematics can be continuously deepened, improved and developed. The higher mathematics syllabus should be uniformly formulated by mathematics teachers and professional teachers of economics and management. Only in this way, the teaching of higher mathematics will have vitality, and the importance of higher mathematics can be guaranteed.

When writing handouts, it is necessary to continuously enrich new content according to specific conditions. Under the premise of retaining the core content of higher mathematics, optimize the content of the combined chapters, and compile the same or similar methods to avoid duplication of relevant content to meet less time. The need to strengthen the concept, focus on application as the focus of teaching, and downplay calculations. For example, the calculation of the derivative and limit of the exponentiation type function can be weakened in teaching; there is no need to talk too much arithmetic skills for indefinite integrals, as long as the integral table is used for calculation; reduce or delete some proofs and formulas of more complicated theorems The derivation is more about the application of the theorem and formula, and does not need to emphasize the rigor; the rich materials are to be complicated, the principle of "less and fine" is adhered to, and the most valuable and essence is the most valuable. The content is arranged to change the previous students' impressions of mathematics from reality, mysterious, difficult to understand, and difficult to learn, and gradually cultivate students' interest in higher mathematics. In order to ensure the effectiveness, some mathematics application problems can be compiled into the lectures for students to discuss, and some mathematics application problems can be compiled as exercises to enhance the applicability of mathematics knowledge.

3. Update Teaching Methods, Innovative Teaching Means

Because of the more concept of advanced mathematics, the logic is stronger, many times, teaching is carried out in a simple teaching method, and the teaching methods and forms are relatively simple. This will cause students to fatigue and gradually lose interest, which is not conducive to Improve teaching effects. Therefore, the reform of teaching methods and teaching methods is particularly important. The teaching methods and teaching methods of economics and management students can be reformed as follows:

3.1 Pay a Attention to the Teaching Process.

Students are afraid of serious mathematics teachers. If the teacher's attitude towards the students is cold in the teaching process, the students will not want to go to math class emotionally. Therefore, teachers should encourage students and educate students more in the teaching process. In order to improve the participation of students in the classroom and increase the efforts of students, you can make changes in the assessment method. The usual grades can appropriately increase the proportion of classroom performance. In the teaching process, we should use more Inspiring language to communicate with students to enhance students' confidence in learning.

3.2 Updating Teaching Methods.

It is not easy for students to master calculus theory more completely in a shorter period of time.

Therefore, teachers should not always use teacher-speaking and students-listening of this single and rigid teaching method, and should pay attention to cultivating students' learning Interest, mobilize their enthusiasm for learning.

In terms of teaching methods, we should focus on practicality, combine specific examples, and weaken the abstract sense of mathematics, so that students feel that learning is useful. For example, when talking about the derivative of a unary function, the focus should be placed on the practical meaning of the derivative, so that students know that the rate of change of function is often encountered in daily life and production, such as labor productivity, product cost change rate, national economic growth, birth rate and mortality, etc. In this way, students will find mathematics useful and interesting. They will understand and learn, and naturally they will be interested in mathematics.

In addition, a variety of teaching methods can be flexibly applied according to different contents. For example, using the "case teaching method" to introduce mathematical concepts, such as: the introduction of concepts such as derivatives, indefinite integrals, and definite integrals; use the "problem-driven method" to develop teaching content, such as: the application of derivatives, the application of integrals; The Law Discussion Method starts the teaching of the problem class, and can organize seminars, let the students come to the stage to explain some problems, try to give students the opportunity to think, speak, and practice; use the "contrast method" to introduce new mathematical concepts and operations, such as: explain Pay attention to the concept of binary calculus and the comparison of similarities and differences between binary calculus; use "intuitive teaching method" to deal with abstract mathematical concepts in a timely manner. For example, when explaining the concept of series limit, you can use Liu Hui's "circle cutting" Introduced.

3.3 Innovative Teaching Means.

In the teaching of higher mathematics, using multimedia teaching as a teaching aid, the abstract mathematical knowledge can be transformed into image graphics or other forms familiar to students through mathematical software, so that make the formation of mathematical concepts, the generation and development of graphics have Visibility, increases the intuitiveness of teaching content, effectively improves classroom teaching efficiency, and greatly stimulates students' enthusiasm for learning and innovation.

You can also use the network means to establish a communication QQ group between teachers and students in the class, provide students with a summary of the teaching knowledge points of each chapter and a summary of the problem solving methods, realize the sharing of resources, and answer the questions raised by the students, as far as possible for the students to provide services.

In short, the teaching purpose of advanced mathematics courses is not only to teach mathematics knowledge, and let students remember several formulas and theorems, but also to let students learn the spiritual essence and thinking methods of mathematics, improve students' learning ability and use mathematics knowledge analyzes problems and solves professional problems, thus improving the overall quality of students. Therefore, teachers should implement teaching in accordance with the professional characteristics of students in teaching.

References

- [1] Fengbo Hou, *Advanced Mathematics (Fourth Edition)*(Higher Education Press, China 2014).
- [2] Hanfang Yang: Some Understandings on the Teaching of Economic Mathematics Course, Gansu Science and Technology, (2008) No.7.
- [3] Juxiang Ma: Teaching Experience of "Advanced Mathematics", University Education, (2010) No.23.
- [4] Fengbo Hou, *Advanced Mathematics Tutorial (Fourth Edition)* (Higher Education Press, China 2014).
- [5] Liwen Pei, *Typical Problems and Methods in Higher Mathematics*(Higher Education Press, China 1996).