Analysis and Design of Advanced Mathematics's IntroductionClass

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Abstract: The introductory class is an important part of the course teaching. It is of great importance to study the introductory class of advanced mathematics. On the one hand, students can have a rough and holistic understanding of the course of higher mathematics. On the other hand, it can let students know the basic role and wide application of advanced mathematics in professional learning. The most important thing is to use the introduction lesson to stimulate the students' interest in learning, to impart their learning methods and to guide the students on their own way of learning.

Keywords: advanced mathematics; introduction class; teaching design

1. Introduction

The importance of the introduction class is mainly reflected in whether the teacher leaves a beautiful first impression to the student, whether the student has a rough and comprehensive understanding of the course, whether the teacher inspires students' interest in learning and so on. From the present teaching of advanced mathematics introductionclass, there is a common phenomenon of neglect. We first analyzed the current teaching situation of introduction class of advanced mathematics, and then pointed out the contents that should be provided in the introductory course. Finally, we designed a teaching mode of introduction class of advanced mathematics.

2. An Analysis of the Present Situation of Introduction Class of Advanced Mathematics

In terms of the teachers' attitude, they did not know enough about the importance of introduction class of advanced mathematics. Some teachers think the introduction class is not important and completely ignores this part. At the beginning of the first class, they just avoid the introductionclass, and go straight to the first chapter. Some teachers did not even introduce themselves. The students did not know the teachers' name after the whole semester.

In terms of teachers' ability, some teachers are limited to their own knowledge level and teaching design ability, and can not stand at a certain height to have a good introduction class. They are not very clear about the history of the development of Higher Mathematics,the establishment process of knowledge system of advanced mathematics. In addition, some new teachers can not design a good introduction teaching content because of the lack of educational theory and experience.

From the point of view of the teaching conditions, the limitations of the teaching hours restrict the teachers to play an effective role in the introduction class. The teachers teaching hours have been reduced, some schools have higher mathematics volumes teaching hours reduced to 136 hours, the teaching content cannot be reduced, because a decrease in a point of knowledge will lead to incompleteness of this class. These knowledge point students are indispensable in the study of postgraduate studies and follow-up courses, which leads to the teachers' lack of time for the introduction class.

3. The Main Contents of The Introduction Course

First of all, the teacher should do a good job of self introduction and course introduction. Teachers should show their enthusiasm and affinity, introduce themselves in concise and humorous language, and provide effective contact ways for students, so that they can facilitate information feedback and communication in the future learning process. For the introduction of the course, students should make clear the difference and connection between higher mathematics and elementary mathematics.

Then, the teacher should clarify why we should learn higher mathematics and how to learn higher mathematics. The system of higher mathematics theory comes from real life problems, which brings great convenience for us to solve many problems, this subject not only has an extremely wide application, provide the basis for many subsequent professional courses, but also cultivate the students' ability of rational thinking and scientific thinking, and improve students' the science of aesthetic consciousness. The answer is multifaceted about how to learn this problem. Students should not only have the confidence, but also according to the characteristics of

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mathematical, Unremittingly to learn, and to do, not just by watching and listening.

Finally, we should introduce the methods of assessment and encourage the students' interest in learning. The teacher should not only tell the students the methods of examination of higher mathematics courses, but also the weight of the middle and final exams and the normal grades. The elements and evaluation methods of daily performance, matters needing attention in homework, attendance, answering questions, interaction between teachers and students, classroom discipline and the way of classroom management by teachers' organization and management, enable students to make clear their learning goals, directions and specific requirements. The teacher uses the inspirational stories of famous mathematicians, or the way of talent, or the famous Maxim related to mathematics to stimulate students' interest in learning.

3. Design of introduction class

3.1. What Is Higher Mathematics

Elementary mathematics: the research object is the constant, studying the problem in a static point of view. Higher mathematics: the research object is the variable, the motion and the dialectics enter into mathematics. The turning point in mathematics is the Cartesian variable, with a variable, the differential and the integral are immediately necessary. In 1637, Descartes published his long book 《better guiding the reasoning and seeking for scientific truth》, and expounded his idea of coordinate geometry, which marked the birth of analytic geometry. Its theory is based on two ideas: The first is the concept of coordinates: the point on the Euclidean plane corresponds to a pair of ordered real numbers. The second is the idea of comparing the equations with two unknowns and the curves on the plane.

3.2. Main Contents of Higher Mathematics

The higher mathematics takes the function as the research object, takes the limit as the tool, and uses the differential and integral as the main content of the natural science. It contains five parts of knowledge: (1) analysis basis: function, limit and continuity; (2) calculus of functions and multivariate functions; (3) vector algebra and spatial analytic geometry; (4) infinite series; (5) ordinary differential equations.

3.3. Characteristics of Mathematics

(1) Abstractness: only retaining the relationship and form of space and abandoning everything else, the degree of abstraction is more than that of other subjects, and the way of mathematics is abstract and speculative. (2) accuracy: the accuracy of the mathematical definition, the logical rigor of reasoning and calculation, and the determination of mathematical conclusions are no doubt and

indisputable. (3) extremely extensive application: the famous mathematician HuaLuogeng pointed out that the universe, micro particle, rocket speed, skillful chemical, the change of the earth, the mystery of biology, numerous daily expense, mathematics everywhere, all the "quantity" of the place is ultimately in mathematical relationship between the amount of the amount. extremely extensive application: the famous mathematician HuaLuogeng pointed out that the universe, micro particle, rocket speed, skillful chemical, the change of the earth, the mystery of biology, numerous daily expense, Mathematics is everywhere.

4. Why do We Have to Learn Mathematics

4.1. Behind Every Major Event in Human History Have A Mathematical Figure

Copernicus's heliocentric theory; Newton's law of gravitation; radio waves; three powers; monogamous marriage system; Einstein's theory of relativity; Mendel Babbage genetics; computer; Malthus's theory; Darwin Da Vinci's theory of evolution; painting; Bach's twelve average rate; to determine the crystal structure of DNA double helix; suspected node open and so on.

4.2. Nature is Designed According to The Principles of Mathematics

Dogs know the shortest line segment between two points; the general Yin Ma by the shortest path is the principle of light reflection; From land to water quickly to rescue the hostages is the use of light refraction principle; the catenaries curved shape is constructed using the principle of minimum potential energy; the structure of honeycomb is certain materials to obtain the maximum space; in addition, the leaves of plants arrangement, the number of petals meet the best ventilation and lighting, the Fibonacci sequence and so on. These show that efficient and thrifty is the basic law of nature,

All the extravagant behavior is against the nature. Saving grain, saving water and electricity, saving all resources and energy, this is the virtue of man, the virtue of nature, and the virtues of mathematics. What a wonderful nature! Ancient Greek scholars thought that God created the world according to the laws of mathematics. The law of mathematics is the essence of the universe pattern and the key to open the door of the cosmic mystery.

The consequences of unknowing mathematics <Does a man need a lot of land> in Tolstoy's writing? It shows the importance of learning mathematics from the opposite side. The rich businessman Baram bought the baskir people for 1000 rubles a day, that is, how big the day you can go from sunset to sunset by running. Ba and Mu run a lower bottom to 10, the upper bottom is 2, the height is 13, the slope is the right angle trapezoid of 15 Russia, its circumference is 40 Russia, the area is 78 square kilome-

ters. But he was dead! If he knew a little math knowledge, he wouldn't die. He will use S = VT to calculate in advance how many ways he can walk a day. Then the design of a compound, such as a length is a, width is B rectangular, he knew how to run after the step of turning. Even further, you need a mathematical consultant to solve the problem of the largest area (the equal week problem) in a certain distance.

5. How to Learn Higher Mathematics

(1) To understand the importance of higher mathematics and to cultivate a strong interest in learning. Marx and Engels quotations: a science can only achieve its true perfection only when it applies mathematics successfully; if we want to understand nature dialectically and materialistic, we must be familiar with mathematics.

(2) The best way to learn mathematics is to do mathematics. Freudenthalfrom Holland said that doing mathematics is to find or create what you want to learn by the students themselves.

6. Motivational Language: a Philosophical Law of Mathematics

$1.01^{365} = 37.8, \quad 0.99^{365} = 0.03$

$1.02^{365} = 1377.4, \quad 0.98^{365} = 0.0006$

The accumulation is very important for learning; the accumulation of bad habits will lead to scourge. The person who is only a little harder than you can actually have dumped you far away.

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