

# Construction of a Golden Course for Advanced Mathematics by Integrating Course Ideological and Political Education

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**Abstract:** In this paper, the necessity of constructing a golden course for Advanced Mathematics is presented. For teachers, golden courses enhance their teaching ability and job satisfaction. For students, golden courses improve their sense of learning value and significance and encourage them to actively learn and participate deeply. Next, the relevant content of course ideological and political construction is provided. Finally, a specific approach was proposed to create a golden course for Advanced Mathematics by integrating ideological and political education into the curriculum.

**Keywords:** Curriculum ideological and political education; Advanced Mathematics course; Golden courses

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## 1. The necessity of creating a golden course for Advanced Mathematics

The reform of higher education is essential. The prelude to higher education reform has already begun. In such an environment, how to carry out curriculum reform to adapt to development is inevitably a problem that must be solved. Universities should change their traditional teaching methods, break through old educational approaches, and change their original thinking patterns. Using new ideas, education systems, learning systems, and thinking patterns, we pre-determine professional and employment directions and integrate the two<sup>[1,2]</sup>. As a basic course, Advanced Mathematics is the foundation of other professional courses, as well as the theoretical basis for digesting and absorbing other professional courses. It plays a critical role in the learning of subsequent courses and the cultivation of students' logical thinking ability. In order to keep up with the current needs of society, this course requires curriculum reform to develop.

Creating "golden courses" is a systematic project that requires top-level design and grassroots innovation<sup>[3,4]</sup>. The "Internet+" class has shown great advantages. The unprecedented tremendous impact of new technologies will trigger a fundamental transformation in the classroom of basic courses. The classroom format is transformed from "quiet" teaching to "dialogue," "criticism," and "debate."

## **2. Course ideological and political construction**

Course ideological and political education is the integration of ideological and political elements into classroom teaching in universities <sup>[5,6]</sup>. Course ideological and political education is the process of imparting knowledge and cultivating skills, while quietly interweaving and integrating ideological and political elements, gradually cultivating students' correct three perspectives—worldview, values, and outlook on life. Only in this way can the educational function be exerted in the teaching of universities, reflecting the essential connotation of ideological and political education in the curriculum, and thus creating a golden course for Advanced Mathematics <sup>[7]</sup>.

### **2.1. Measures for course ideological and political construction**

Teachers deeply explore the mathematical culture inherent in the curriculum and the development history of higher mathematics education, used as materials for ideological and political education in the curriculum. These are integrated into teaching to achieve educational goals. In teaching, we can combine mathematical knowledge and strive to deeply explore the beauty, philosophy, and spirit of mathematics contained in mathematical courses, providing students with silent ideological and political education.

Teachers carry out teaching and research activities on course ideological and political construction, especially inviting course ideological and political teachers to participate in course ideological and political teaching and research activities. A team of ideological and political teachers should be formed. Teachers also conduct post-class reflection and self-evaluate the actual results.

### **2.2. Effectiveness of course ideological and political construction**

Teachers actively explore ideological and political elements in the curriculum and seek the best entry point to integrate them into classroom teaching, in order to achieve better educational effects.

By participating in various skill competitions, micro course competitions, and course ideological and political competitions organized by the school, teachers can achieve good rankings and promote construction through competitions.

Teachers also pay attention to the accumulation of relevant information and download academic papers, teaching materials, and teaching videos related to ideological and political education courses. They actively participate in course recording to achieve collective completion of lesson plans with ideological and political education courses.

### **2.3. Problems and improvement measures in course ideological and political work**

#### **2.3.1. Weak foundation of ideological and political education**

The foundation of ideological and political education is weak, requiring improvement and enhancement. The ideological and political attributes of the course and the exploration of ideological and political resources are not comprehensive enough.

To solve this problem, the teaching content, pace, and mode of the course are controlled and adjusted by the instructor. The quality and efficiency of teaching are closely related to teachers' teaching ability and levels. It can be seen that in promoting the process of ideological and political education in the curriculum, efforts should be made to increase the training of teachers. Schools need to conduct relevant training on exploring the intrinsic connection between ideological and political courses and mathematics courses, as well as the ideological and political elements in the courses, both online and offline.

### **2.3.2. Lack of awareness of self-improvement and development among teachers**

Teachers lack the awareness of self-improvement and development in terms of their skills and knowledge. To solve this, when carrying out self-improvement, teachers should avoid only focusing on strengthening professional knowledge reserves to improve professional teaching ability and level. The importance of cultivating one's own ideological and political literacy should not be overlooked. Teachers should actively learn relevant ideological and political knowledge and improve course ideological and political abilities. This can enhance subjective willingness and avoid making the construction of ideological and political courses superficial.

### **2.3.3. Poor integration of ideological and political education with curriculum content**

The integration of ideological and political education and curriculum content is poor and there is a phenomenon of rote application. To improve this situation, teachers need to have a clear understanding of the objectives and requirements for the ideological and political education content in the curriculum. The implementation of ideological and political education goals should be clarified in the classroom, as well as the study objectives in terms of knowledge and skills. For instance, the combination of Sizheng Cheng elements and the effectiveness of course ideological and political education. It is necessary to clearly identify the parts with ideological and political content in the lesson plan, and provide personalized prompts or annotations. Reflection and summary should be conducted after class.

## **3. Specific methods to construct a golden course for Advanced Mathematics by integrating course ideological and political construction**

### **3.1. Establishing goals for ideological and political education**

Based on the concept of ideological and political education in Advanced Mathematics courses, goals for ideological and political education in courses should be established.

Taking Calculus as an example, its ideological and political education goals are set as follows: Calculus, as a general education course, has a large number of class hours and wide coverage. Teachers should combine their own work experience and profound understanding of mathematics to discuss how to combine knowledge transmission with value guidance from the aspects of spreading mathematical culture and explaining mathematical philosophy and life value. This is to cultivate a positive and optimistic attitude towards life among students and enable students to deeply understand the importance of mastering and applying mathematical methods. The thoughts, viewpoints, contributions, rigorous scholarship, the spirit of hard work, overcoming difficulties, and pursuit of the truth of mathematicians have a positive impact on the personal moral consciousness and conduct of students. It can cultivate and enhance the ideological and moral character of students. This enables students to understand the dialectical opposition and unity between the local and the whole, the process and the result of change, and to adopt a thinking method and approach.

For example, the courses Linear Algebra and Probability Theory and Mathematical Statistics have the following ideological and political education goals: theoretical completeness, strong abstraction, rigorous logic, and a wide application range of the courses. It is now concise and standardized in its internal structure and is reflected in its strong applicability and ease of operation externally. Exploring the beauty of mathematics can not only help students understand the utility of mathematics, but also cultivate their excellent mathematical spirit and enhance their aesthetic ability. Many theorems and formulas are named after people, which instills in students a spirit of courage to struggle, fearlessness of difficulties, continuous exploration, and the pursuit of

truth, promoting the importance of integrity. On the basis of learning the course content, students can establish a correct outlook on life and values and sense of social responsibility, national pride, and patriotism, achieving moral education and cultivating people.

### **3.2. Exploring ideological and political elements by chapter**

Each chapter delves into the content that can introduce ideological and political elements into the curriculum. Teachers use knowledge points as a medium to make mathematics classroom teaching an important channel for introducing ideological and political education into the curriculum. This can gradually stimulate students' interest in ideological and political education in the curriculum and cultivate students' sense of social responsibility and patriotism.

### **3.3. Proposing requirements for the teaching methods of ideological and political education in the curriculum**

Integrating ideological and political education into higher mathematics curriculum teaching aligns various courses with ideological and political courses. Integration of explicit education and implicit education forms a synergistic effect. Schools should build a comprehensive and all-round education system for all employees. Deepening the exploration of ideological and political elements in Advanced Mathematics courses is an important link in deepening the ideological and political reform of the curriculum.

For teachers, “golden courses” enhance their teaching ability and job satisfaction. More compulsory general education courses should develop into high-quality courses. For students, “golden courses” improve their sense of “learning value” and “meaning,” encouraging them to actively learn and participate deeply. By integrating the construction of ideological and political education into the curriculum, we will ultimately create a golden course for Advanced Mathematics. There is an educational atmosphere for both in-class and out-of-class learning and practical activities. Integrating ideological and political elements naturally into the teaching of the curriculum allows students to immerse themselves in the ocean of knowledge while experiencing warmth and positivity.

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