

BOARD OF HIGHER EDUCATION
APPLICATION FORM FOR OPENING A MASTER'S PROGRAM
WITHOUT THESIS

1. NAME OF THE PROPOSED PROGRAM

Niğde Ömer Halisdemir University Institute of Educational Sciences ***Mathematics and Science Education Department of Mathematics Education*** Non-Thesis Master's Program.

2. RATIONALE FOR OPENING THE PROGRAM

The great technological development and the accompanying social changes in the twenty-first century require all societies to adapt to the ever-changing and renewing conditions of the information age. One of the fields most affected by these changes and developments is mathematics education. It is now a necessity for mathematics teachers to be constantly informed about innovations and changes related to their professional fields. Since mathematics education aims to develop teachers' knowledge, skills and perspectives, it has a program that enables them to become effective teachers. It can be quite time consuming for teachers to become effective teachers only as a result of the experiences they have had over the years, and there may be mistakes and deficiencies in their experiences. This situation may reflect negatively on students. Mathematics teachers should be able to intervene by choosing the right approaches at the right time to overcome the difficulties they encounter in mathematics education. For this reason, training to be able to analyze experiences in practice by blending theoretical knowledge with practice, to approach mathematics education from a scientific perspective, to evaluate an event related to mathematics education from different perspectives, and to explain events in the light of theoretical knowledge requires a focus on mathematics education. Current theoretical knowledge that can help mathematics teachers solve the problems they face in mathematics education has a very important place in mathematics education. The ability of mathematics teachers to analyze the problems they experience with scientific methods and to put forward and apply different methods and techniques in accordance with the results of the analysis can be considered as a very positive gain in terms of effective mathematics education. In this context, it is important to train educators who will specialize in the field of mathematics education.

The general objectives of the proposed mathematics education non-thesis master's program are stated below:

- a- To develop the knowledge and skills of mathematics educators in basic areas such as mathematics teaching methods, technology and material use in

education and teaching theories

- b- To provide a comparative perspective on mathematics education by examining different mathematics education programs implemented in the world, to train experts who have knowledge about how a mathematics educator can be and how problems can be solved.
- c- To provide opportunities for our teachers and students to closely follow the developments in the field of mathematics education, to acquire in-depth knowledge, skills, attitudes and values in this field, to expand their social circles and career development
- d- To train researchers who have critical thinking, who can conduct research on a universal scale and who can produce projects on problems related to mathematics education
- e- The aim of this course is to train teachers and students to learn about scientific research methods and to see all stages of a scientific research in the field of mathematics education and to train experts who can design and implement a scientific research in the field of mathematics education.

The Program Outcomes of the proposed mathematics education non-thesis master's program are stated below.

Non-Thesis Master's Program Outcomes

NO	PROGRAM OUTCOMES
1	To have knowledge in the field of mathematics education at the level of expertise.
2	To be able to use and apply the knowledge acquired in the field of mathematics education at the level of expertise to conduct interdisciplinary studies and to relate their studies to different disciplines.
3	Contributes to the accumulation of knowledge in the field of mathematics education through his/her research.
4	Have knowledge about other disciplines related to the field of mathematics education.
5	To be able to propose solutions to problems requiring expertise in the field of mathematics education by using quantitative and qualitative scientific research methods.
6	Participates effectively in team work in scientific research in the field of mathematics education; fulfills his/her responsibilities, is open to cooperation and takes leadership when necessary
7	Adopts lifelong learning strategies and uses them while conducting their studies.

8	To be able to share the developments in the field of mathematics education and their own work in a community in written and oral form.
9	Critically examines social relations in professional and occupational settings and the norms that guide these relations.
10	To be able to use a foreign language to follow the publications in the field, to communicate and to produce scientific works in a foreign language.
11	Uses information and communication technologies at an advanced level in his/her studies in the field of mathematics education.
12	Conducts research on ethical grounds.
13	Follow and interpret new developments in the field of mathematics education.
14	Knows and applies contemporary teaching methods and techniques and measurement and evaluation methods related to teaching profession and field.
15	Knows the developmental characteristics and learning styles of the student group in which he / she will practice his / her profession, and can make effective planning, material development and application in accordance with these characteristics.

In summary; with the proposed ***Mathematics and Science Education Department Mathematics Education Non-Thesis Master's Program***, it is aimed to examine the developments in education at local, national and international level, good practice examples in the context of the theoretical foundations of the field, to develop innovation and improvement suggestions, to gain the skills and ethics of conducting scientific research and writing scientific reports.

8 academic staff (2 Prof. Dr., 3 Assoc. Dr., 2 Dr. Lecturer, 1 Research Assistants) in the Department of Mathematics and Science Education, Department of Mathematics and Science Education, Department of Mathematics Education, to train specialized individuals needed by the field by opening the Non-Thesis Master's Program, gaining knowledge in the professional field and showing how to use the existing knowledge in practice. In addition to all these, the opening of the Non-Thesis Master's Program in Mathematics and Science Education Department of Mathematics Education;

i. To increase the scientific research activity of our discipline in terms of quantity and quality,

ii. By contributing to the increase in the efficiency and effectiveness of the scientific activities of faculty members, it will also contribute to the achievement of the goal of improving scientific activities in all aspects, which constitutes one of the foundations of our country's higher education policy. It will also contribute to increasing the quality of teacher training by responding to the needs of teachers who want to specialize in the field of

Mathematics Education.

3. NON-THESIS MASTER'S PROGRAMS CARRIED OUT IN OUR UNIVERSITY

Niğde Ömer Halisdemir University Institute of Educational Sciences, Institute of Natural and Applied Sciences and Institute of Social Sciences Non-Thesis Master's Programs are as follows:

Institute of Educational Sciences:

- Department of Basic Education
 1. Department of Classroom Teacher Education
- Department of Turkish and Social Sciences Education
 1. Department of Social Studies Education
- Department of Fine Arts Education
 1. Department of Music Education
- Department of Educational Sciences
 1. Department of Curriculum and Instruction
 2. Department of Educational Administration
 3. Educational Sciences - Guidance and Psychological Counseling (Second Cycle Non-Thesis Master's Degree)

Institute of Social Sciences:

- Department of Health Management

There is no interdisciplinary cooperation within the scope of the non-thesis master's program named "Department of Mathematics Education".

4. FOREIGN EXAMPLES OF THE PROPOSED MASTER'S PROGRAM WITHOUT THESIS

University	Program Name	WEB Page
University of Central Arkansas	College of Education	https://www.applyboard.com/schools/university-of-central-arkansas/programs/master-of-arts-mathematics-education-non-thesis
University of Georgia	College of Education	https://grad.uga.edu/degree/ma-mathematics-non-thesis/

Texas A&M International University	College of Education	https://catalog.tamui.edu/graduate- information/arts- sciences/mathematics- physics/master-science- mathematics-mathematics- education-track-non-thesis-ms/
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5. SCOPE OF THE PROPOSED NON - THESIS MASTER'S PROGRAM AND THE DISCIPLINES IT INCLUDES

The program proposed to be opened is a higher education program that includes at least two semesters of education, scientific research and application activities in order to specialize in the field of mathematics education, to develop special knowledge and application skills of those who have received a bachelor's degree or an equivalent degree from a higher education institution of at least four years in Turkey or abroad. This program aims to professionalize and interdisciplinary evaluation with the content of mathematics education science, mathematics learning and teaching approaches, mathematics education policies, current changes and innovations in mathematics education, problems of mathematics education in the Turkish education system, comparative analysis of international mathematics education systems, technology and scientific research skills in mathematics education. The non-thesis master's program in mathematics education is a flexible program that will have an up-to-date curriculum that follows the topics, scope and practices in the national and international mathematics education master's program. The main aim of the proposed program is to train specialists who have a good command of philosophical and theoretical foundations and can use research methods and techniques effectively to effectively implement mathematics education and solve the problems encountered. Within the scope of this program, it is aimed to teach the techniques used in contemporary educational environments in an applied manner. The proposed Mathematics Education non-thesis master's program will cover the Department of Mathematics Education

6. ESTIMATED NUMBER OF STUDENTS TO PARTICIPATE IN THE PROPOSED PROGRAM

The estimated student demand numbers for the first four years of the proposed Non-Thesis Master's Program are presented in Table 1 in Annex-1.

7. STUDENT ADMISSION REQUIREMENTS FOR THE PROPOSED PROGRAM

In the admission of students to the Non-Thesis Master's Program proposed to be opened, the provisions specified in the Graduate Education and Training Regulations of the Council of Higher Education and the Graduate Education and Examination Regulations of Niğde Ömer

Halisdemir University Institute of Educational Sciences, which is determined as the Executive Institute for the program, will apply.

To apply for the Master's program without thesis;

- a- Applicants must have a bachelor's degree and submit a bachelor's degree transcript in the application.
- b- Candidates with a Bachelor's Degree from abroad are required to obtain a certificate of equivalence from the Council of Higher Education.

Special Conditions:

- a- To have graduated from the Mathematics Education or Mathematics undergraduate programs of the Faculty of Education or Faculty of Science / Science Literature of the universities or to be currently appointed as a teacher.

Success Evaluation in Non-Thesis Master's Programs

The entrance success score for master's degree without thesis is calculated by taking into account the undergraduate graduation grade point average. The Graduate School Board of Directors ranks the candidates according to the undergraduate graduation grade point average. The two digits after the comma are taken into account in the score ranking. If the scores of the candidates in the last place are equal as a result of the ranking, the quota is increased to include the relevant candidates.

8. PROGRAM COURSES AND CONTENTS

In order to successfully complete the Non-Thesis Master's Program, it is necessary to meet the conditions specified in Niğde Ömer Halisdemir University Graduate Education and Examination Regulations. *Article 25/3: "The success grade of a course in graduate programs is the sum of 40% of the midterm grade average and 60% of the general / make-up exam grade; In order for the student to be considered successful in the relevant course, this grade must be at least 75 points out of 100 points in master's programs with thesis and without thesis, and at least 80 points in doctorate / proficiency in art programs. Seminar, term project, thesis, special topics and specialization courses are evaluated as successful or unsuccessful."* Accordingly, it is necessary to complete at least 60 ECTS credits for the 10 master's courses offered within the scope of the program and 60 ECTS credits by being successful in the Term Project during one semester. In order to graduate from the program, the term project must be prepared and successfully presented and a GPA of at least

2.50 out of 4.00 is required.

The possible courses to be offered within the scope of the program and the content and credit information of these courses are presented below (see **Annex-4a** and **Annex-4b**).

Credit Information of Non-Thesis Master's Program Compulsory Courses

Fall Semester	CREDIT		
	T	P	ECTS
Term Project	0	1	2
Spring Semester	CREDIT		
	T	P	ECTS
Term Project	0	1	2

Credit Information of Non-Thesis Master's Program Elective Courses

Fall Semester	CREDIT		
	T	P	ECTS
Metacognitive Learning-Teaching Approaches	3	0	6
Comparative Analysis of Mathematics Programs	3	0	6
Modeling in Mathematics Education	3	0	6
Teacher Education Studies	3	0	6
Basics of Secondary School Mathematics Teaching	3	0	6
Contemporary Teaching Approaches	3	0	6
Utilizing Proof in Mathematics Teaching	3	0	6
Test Development in Mathematics Education	3	0	6
Mobile Applications in Mathematics Education	3	0	6
Problem Solving in Mathematics	3	0	6
Active Learning in Mathematics Education	3	0	6
Spring	CREDIT		
	T	P	ECTS

Semester			
Developing Math Power	3	0	6
New Approaches in Learning Environment Design	3	0	6
Technological Pedagogical Content Knowledge	3	0	6
Cognitive Theories in Mathematics Education	3	0	6
Skills in Teaching Mathematics	3	0	6
Current Approaches and Applications in Assessment and Evaluation	3	0	6
Teaching Mathematics with Games	3	0	6
Technology Supported Mathematics Education	3	0	6
Mathematics in National and International Examinations	3	0	6
Current Studies in Mathematics Teaching	3	0	6
Cloud Computing Applications in Mathematics	3	0	6

Non-Thesis Master's Program Compulsory Course Content

Fall Semester	Short Course Content
Term Project	This course involves the student to conduct an independent study under the supervision of a faculty member. For this reason, during the Term Project, the student works under the supervision of the advisor to search the literature, collect data, analyze and present the results in writing. is doing.
Spring Semester	Short Course Content
Term Project	This course involves the student to conduct an independent study under the supervision of a faculty member. For this reason, during the Term Project, the student works under the supervision of the advisor to search the literature, collect data, analyze and present the results in writing. is doing.

Content of Non-Thesis Master's Program

Elective Courses

Fall Semester	Short Course Content
Metacognitive Learning-Teaching Approaches	Discussing how to support metacognitive learning by knowing the characteristics and relationship between cognitive learning theories and metacognitive learning approaches, integration of metacognitive teaching approaches into the learning environment, analysis of sample applications, metacognitive exemplifying the learning environment to support learning.
Comparative Analysis of Mathematics Programs	The vision and mission of the mathematics program, the learning approach and basic elements, learning areas, measurement and evaluation principles, historical development, examination of the programs implemented in different countries and comparative analysis Don't.
Modeling in Mathematical Education	To learn the process of mathematical modeling, to be able to construct mathematical models for the solutions of real life problems in different fields, to learn how to use technology in the mathematical modeling process, to understand the place of mathematical modeling in the mathematics curriculum and to learn the approaches to using mathematical modeling in courses. Different mathematical understand modeling approaches.
Teacher Education Research	Examination of Pedagogical Content Knowledge and its components within the framework of different models. Discussion of the historical development of teacher education in general and mathematics teacher education in particular, new approaches and models in teacher education, current teacher education programs in developed countries and Turkey, teacher education research, methods used in teacher education, difficulties in transition to teaching. Teacher Education in the Turkish Education System and Today Assessment of their problems.
Foundations of Secondary School Mathematics Teaching	Examination of mathematics teaching with the standards of the Council for the Teaching of Mathematics, examination of the process of teaching and learning mathematics, evaluation of activity design and basic design principles, discussion of procedural-conceptual knowledge and mathematical proof and question types, examination of the history of mathematics and the use of technology in teaching. Articles and research related to the topics. examination and evaluation.
Contemporary Teaching Approaches	Examination of behaviorist, cognitivist and constructivist learning processes, examination of teaching methods and new approaches, application and evaluation of new approaches to educational situations in different subject areas. Articles and researches related to the subjects. examination and evaluation.

Using Proof in Mathematics Teaching	Basic concepts related to proof, What is proof and what is not proof - Historical and philosophical perspectives on proof and proof, The place and importance of proof in mathematics and mathematics education, Proof and proof from the perspective of mathematics curricula, Difficulties in proof and their causes, Proof approaches and schemes, Proof and proof Alternative approaches to nonverbal proof
Test Development in Mathematics Education	Measurement of mathematics achievement, basic concepts related to testing, validity and reliability, test development steps, question types used in mathematics achievement test, question writing process, test form creation, test application, test, item and perform and interpret distracter analysis
Mobile Application Development in Mathematics Education	Mobile devices and sensors, mobile operating systems, mobile application development environments, use and examples of mobile applications in mathematics education, mobile application development in mathematics education, mobile application development for mathematics education evaluation of mobile applications developed
Problem Solving in Mathematics	Problem solving in education, its processes and the skills gained at the end
Active Learning in Mathematics Education	Definition of active learning, teaching methods and techniques used in active learning process, student roles in active learning, teacher roles in active learning, classroom in active learning environment.
Spring Semester	Short Course Content
Developing Math Power	Examining mathematical power and related skills, gaining knowledge about the orientation and requirements of mathematical power in mathematics education, examining sample applications to develop mathematical power, mathematical power Examination of measurement and evaluation methods.
New Approaches in Media Design	Historical development of contemporary learning approaches; examination of learning-teaching principles, applications and limitations; designing and implementing a learning environment based on one of the approaches and analyzing the results obtained. evaluation.
Technological Pedagogical Content Knowledge	The place and importance of information technologies in mathematics education, examination of current programs used in mathematics education. Exploring the features of these programs, the contributions of technologies used in mathematics teaching to teaching, the evaluation of the roles assigned to the teacher, the role assumed by the students, the mediator role of computer programs, technology-supported activity development, technology assessment of the benefits and challenges of its use.
Cognitive Theories in Mathematics Education	The possibilities and limitations of the theories guiding mathematics education, mathematical interpretation and the awareness they create in terms of mathematics learning-teaching. Theories guiding mathematics education related articles and examination and evaluation of research.

Skills in Mathematics Teaching	What is a skill, its importance in mathematics teaching, teaching practices that can be used in mathematics teaching for the development of basic mathematical skills (problem solving, mathematical process skills, affective skills, psychomotor skills, information and communication technologies), teaching practices that can be used in mathematics teaching, the related topics. research.
Current Approaches and Applications in Measurement and Evaluation	The place of measurement and evaluation in the education system, its aims, its elements, its types and their adaptation to the field teaching for the multidimensional recognition of the student. Measurement and evaluation in curricula, related review of the literature.
Teaching Mathematics with Games	Definition of play and creative drama, importance of play and creative drama for mathematics teaching, classification of play, relationship between play and creative drama, structure and application stages of educational play and drama, preparation and application of creative drama plan for teaching mathematics acquisitions, educational games and drama evaluation of
Technology Supported Mathematics Education	Basic concepts related to technology supported mathematics teaching, learning environments, virtual manipulatives, calculators, tablets, Office applications, network research, dynamic geometry software, dynamic geometry software, using robotic kits as mathematics learning environment, designing and developing technology supported mathematics learning environments and evaluation
Mathematics in National and International Exams	National and international exams, TIMSS assessment framework, PISA assessment framework, evaluation of TIMSS mathematics questions, evaluation of PISA mathematics questions, intercultural comparisons, national placement tests
Current Research in Mathematics Teaching	Students read articles published in prestigious journals on mathematics education topics that have been studied intensively in recent years and learn about these topics. they become owners.
Cloud Computing Applications in Mathematics	What is cloud computing? Storage areas on the internet, Web 2.0 concept and applications, Social bookmarking, Cloud computing and mobile technologies, Rss, Wikis and collaboration, Web logs and educational applications, Web supported material development, Data visualization on the web, Networking, Learning management systems, Data on the web such as security.

9. LECTURERS WHO WILL TAKE PART IN THE PROGRAM

The names, titles, staff positions and working principles of the faculty members who will work in the proposed Non-Thesis Master's Program are presented in **Appendix-2, Table 2.a.** **The** summary table regarding the information of the faculty members who will take part in the Non-Thesis Master's Program is presented in **Annex-5, Table 2.b** and **Annex-6, Table 6.**

10. FACULTY MEMBER QUALIFICATION REQUIREMENT AND CURRICULUM VITAE

In Niğde Ömer Halisdemir University Faculty of Education, Department of Mathematics and Science Education, Department of Mathematics Education, 2 Professors, 3 Associate Professors, 2 Assistant Professors, 2 Ph. Member and 1 Ar. There are 2 Professors, 3 Associate Professors, 2 Assistant Professors, 2 Assistant Professors and 1 Research Assistant and meets the criteria for faculty members required to open a Master's Program without Thesis. The curriculum vitae of the faculty members who will take part in the proposed program are presented **in Appendix-3**.

11. LANGUAGE OF INSTRUCTION

The language of instruction of the proposed Department of Mathematics and Science Education, Division of Mathematics Education is completely Turkish.

12. INFORMATION ABOUT AUXILIARY STAFF

The Institute of Educational Sciences and the Faculty of Education serve in their own very modern buildings on the Central Campus of Niğde Ömer Halisdemir University. Therefore, they benefit from both the physical and personnel facilities of the University. In addition, both the Institute of Educational Sciences and the Faculty of Education have sufficient number and quality of auxiliary staff. There is no need for additional auxiliary staff.

13. LIST OF EXISTING LABORATORIES AND IMPORTANT EQUIPMENT

All the facilities of our University in general and the Faculty of Education in particular will be used for the program. There are 3 computer laboratories in our faculty. There is a projection device in all classrooms. There are a total of 120 computers in 3 computer laboratories within Niğde Ömer Halisdemir University Faculty of Education open to the use of graduate students. These computers are kept open and ready for student use, especially during the days and hours when classes are held during the week. Graduate students can use these computers during the days and hours of the courses. The number of computers used by academic and administrative staff working at the Faculty of Education is 152. In addition, in today's world where computer technology is rapidly spreading, there are 5 wireless networks available for the use of graduate students in order to make access to information faster and more practical. Students can also benefit from the wireless internet network with a personal user name and password they will receive from the university's IT department.

14. BREAKDOWN OF EXISTING COMPUTER EQUIPMENT

In the program proposed to be opened, Niğde Ömer Halisdemir University Faculty of Education has three computer laboratories of 100 square meters with 30 computers connected to the internet, dual-core (2 Core Duo), 19" LCD monitors, projectors and projection devices to be used for education and research purposes.

15. NUMBER OF COMPUTERS AVAILABLE FOR USE BY GRADUATE

STUDENTS AND THEIR USAGE TIME

The number of computers available and their specifications are given in Article 14. These laboratories are open for use between 08.30-16.30 on weekdays.

16. NAMES OF CONTINUOUS PUBLICATIONS IN THE LIBRARY OF THE UNIVERSITY AND OUR DEPARTMENT

	MAGAZINE NAME	YEAR
1	Atlas	2002
2	Education in the Light of Science and Reason	2005
3	Science and Children	2000
4	Knowledge World	2009
5	Science and Technology	1990
6	Contemporary Local Governments	1992
7	Education Research	2008
8	Education and Science	2009
9	Armenian Studies	2003
10	Folklore Literature	1999
11	Educational Sciences in Theory and Practice	2001
12	National Education	1993
13	National Folklore	2009
14	National Geographic Turkey	2004
15	NTV History	2010
16	Teacher World	2000
17	Popular Science	2002
18	History and Society	2000

19	Society and Science	2000
20	Social History	2000
21	Turkish World Studies	1979
22	Turkish World History Journal	1987
23	Turkish Literature	2000
24	Turkish Homeland	1998
25	Education for Life	2002
26	Turkey Diary	1989
27	Contemporary Education	1991
28	Gazi University Gazi Education Faculty Journal (GEFAD)	2000
29	Ahi Evran University Journal of Kırşehir Faculty of Education(KEFAD)	2009

As of the end of 2022, the databases to which the university library subscribes for the proposed program are given in Table 4.

Table 4: Databases subscribed by the university library related to the proposed program

1	Academy Kim Psychology Online
2	American Chemical Society (ACS)
3	Asme E-Books
4	AYEUM
5	Cab Abstract
6	Cabi E-Books
7	Clinical Key
8	Ebsco Discovery Services (EDS)
9	Ebsco Selected Ebooks
10	Ebscohost Academic Search Ultimate
11	Ebscohost Business Source Ultimate
12	Ebscohost Multidisciplinary Databases (26)
13	Education Source
14	Electrochemical Society Digital Library (ECS DL)
15	Emerald Journals Premier
16	Emerald E-Books
17	Hyperbook Online
18	Lawturk

19	Ieee/Wiley E-Books
20	Ieee/Iel Xplore
21	Institute of Physics (IOP)
22	Ios Press Computer And Communications Sciences E-Books
23	Ithenticate
24	Idealonline Turkish Type Books
25	Idealonline Magazine
26	Jstor
27	Jstor Business And Economics E-Books
28	Mendeley
29	Nature- Academic Journals
30	Nature- Palgraw Macmillan Journals
31	Nature + Nature Methods + Nature Protocols
32	Ovid Lww
33	Oxford Journals Online
34	Pnas (Proceedings of the National Academy of Science)
35	Project Muse E-Books
36	PQ Central
37	PQ Digital Dissertations and Theses Fulltext
38	PQ E-Book Central
39	Proquest Selected Books
40	Royal Society Of Chemistry Journals (Rsc)
41	RSC E-Books
42	Sage Premier Journals
43	Science Direct Journals
44	Science Direct E-Books
45	Scopus
46	Sobiad
47	Springerlink
48	Springer E-Books Collection
49	Taylor And Francis Journals
50	Taylor And Francis Selected Books
51	Technopress Journals
52	Turcademy
53	Turnitin
54	Ulakbim National Databases

55	Uptodate
56	Web of Science
57	Wiley Journals Online

INTERDISCIPLINARY NATURE OF THE PROGRAM

The proposed program will be conducted independently from other master's programs. However, due to the close relationship of "education" with other disciplines, academic collaborations will be made with different disciplines when necessary.

a) The program proposed to be opened will be independent from other master's programs and will be carried out independently and uniquely.

b) The proposed program will not weaken the existing master's programs as it will be conducted independently.

c) The proposed program does not require new physical space (classrooms, laboratories, etc.) in addition to existing facilities.

d) The proposed program has no additional financial burden for the university.

e) In cases where students will be admitted from different programs, students are subject to scientific preparation.