



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

| | |
|----------------------|------------------------|
| Predmet: | Zgodovina matematike |
| Course title: | History of Mathematics |

| Študijski program in stopnja Study programme and level | Študijska smer Study field | Letnik Academic year | Semester Semester |
|--|-------------------------------|-------------------------|----------------------|
| Enovit magistrski študijski program druge stopnje Predmetni učitelj | / | 5. | 9. |
| Five-year master's degree program Subject Teacher | / | | |

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

| Predavanja Lectures | Seminar Seminar | Sem. vaje Tutorial | Lab. vaje Laboratory work | Teren. vaje Field work | Samost. delo Individ. work | ECTS |
|------------------------|--------------------|-----------------------|---------------------------------|---------------------------|-------------------------------|------|
| 75 | | | | | 135 | 7 |

Nosilec predmeta / Lecturer:

| | | |
|-------------------|-------------------------------|-------------------|
| Jeziki / | Predavanja / Lectures: | slovenski/Slovene |
| Languages: | Vaje / Tutorial: | slovenski/Slovene |

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti: **Prerequisites:**

Vsebina: **Content (Syllabus outline):**

Metodologija zgodovine matematike, zgodovinski viri.

Glavni centri in obdobja razvoja matematike: mezopotamska matematika, egipčanska matematika, starogrška in helenistična matematika, kitajska matematika, indijska matematika, japonska matematika, matematika indijskih civilizacij, arabska matematika, matematika renesanse, matematika XV., XVI., XVII., XVIII., XIX. in XX. stoletja.

Razvoj glavnih področij matematike: geometrije, aritmetike, algebre, teorije števil, analize, matematične logike, teorije množic, topologije, teorije grafov, teorije verjetnosti, statistike, računalništva, metodike matematike, zgodovine matematike idr. Razvoj osnovnih matematičnih pojmov.

Pomembni matematiki in njihov prispevek k razvoju matematike. Slovenski matematiki.

Zgodovina matematike kot del splošne zgodovine. Filozofski, sociološki, psihološki, lingvistični in podobni aspekti matematike. Matematika in druge znanosti.

Methodology of the history of mathematics, historical sources.

The main centers and periods of mathematical development: Mesopotamian mathematics, Egyptian mathematics, Ancient Greek and Hellenistic mathematics, Chinese mathematics, Hindu mathematics, Japanese mathematics, mathematics of indigenous cultures of the Americas, Arabic mathematics, Renaissance mathematics, mathematics of XV., XVI., XVII., XVIII., XIX. and XX. centuries.

The development of the major areas of mathematics: geometry, arithmetic, algebra, number theory, analysis, mathematical logic, set theory, topology, graph theory, probability theory, statistics, computer science, methodology of mathematics, history of mathematics, etc. The development of the fundamental mathematical notions.

Important mathematicians and their contribution to mathematics. Slovenian mathematicians.

A history of mathematics as a part of a general history. Philosophical, sociological, psychological, linguistic and similar aspects of mathematics. Mathematics and other sciences.

Temeljni literatura in viri / Readings:

V. J. Katz, *A History of Mathematics, An Introduction*. Boston [etc.] : Addison-Wesley, 2009.

D. M. Burton, *The history of mathematics: an introduction*. McGraw-Hill, 2006.

C. B. Boyer, U. C. Merzbach: *A History of Mathematics*. New York [etc.]: John Wiley & Sons, 1991.

F. Cajori: *A History of Mathematical Notation*. New York: Dover Publications, 2011.

B. L. van der Waerden: *Geometry and Algebra in Ancient Civilizations*. Berlin: Springer Verlag, 2002.

D. J. Struik: *Kratka zgodovina matematike*. Ljubljana: DMFA 1986.

Cilji in kompetence:

Spoznati zgodovinski razvoj matematike, razvoj njenih osnovnih področij in razvoj osnovnih matematičnih pojmov. Seznaniti se s pomembnimi matematiki in njihovimi prispevki k razvoju matematike.

Objectives and competences:

To obtain knowledge of the historical development of mathematics, the development of its major areas, and the development of the fundamental mathematical notions. To get acquainted with the important mathematicians and their contribution to mathematics.

Predvideni študijski rezultati:

Znanje in razumevanje:

- zgodovinski razvoj matematike, razvoj njenih osnovnih področij in razvoj osnovnih matematičnih pojmov
- pomembni matematiki in njihovi prispevki k razvoju matematike

Prenesljive/ključne spretnosti in drugi atributi:

- prenos znanja zgodovine matematike na vse matematične predmete in na nekatera druga področja (fizika, astronomija, mehanika, računalništvo, filozofija, zgodovina, ...).

Intended learning outcomes:

Knowledge and understanding:

- historical development of mathematics, the development of its major areas, and the development of the fundamental mathematical notions
- important mathematicians and their contribution to mathematics

Transferable/Key Skills and other attributes:

- knowledge transfer of history of mathematics to all mathematical courses and also to other areas (physics, astronomy, mechanics, computer science, philosophy, history, ...).

Metode poučevanja in učenja:

- Predavanja
- Individualno delo

Learning and teaching methods:

- Lectures
- Individual work

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment:

Način (pisni izpit, ustno izpraševanje, naloge, projekt)

- Seminarska naloga
- Ustni izpit

Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.

Opravljena seminarska naloga je pogoj za pristop k izpitu.

20%
80%

Type (examination, oral, coursework, project):

- Seminar assignment
- Oral exam

Each of the mentioned commitments must be assessed with a passing grade.

Passing grade of the seminar assignment is required to take the exam.

Reference nosilca / Lecturer's references:

1. EREMITA, Daniel. Biderivations and commuting linear maps on current Lie algebras. *Journal of Lie theory*. 2021, vol. 31, no. 1, str. 119-126. ISSN 0949-5932. <http://www.heldermann.de/JLT/JLT31/JLT311/jlt31006.htm>. [COBISS.SI-ID [100444419](#)]
2. EREMITA, Daniel. Biderivations on tensor products of algebras. *Communications in algebra*, ISSN 0092-7872, 2018, vol. 46, iss. 4, str. 1722-1726. <http://doi.org/10.1080/00927872.2017.1355375>, doi: [10.1080/00927872.2017.1355375](https://doi.org/10.1080/00927872.2017.1355375).
3. EREMITA, Daniel. Behfar, Roonak (IR-UKURDS-M); Ghahramani, Hoger (IR-UKURDS-M): Lie maps on triangular algebras without assuming unity. (English summary). - *Mediterr. J. Math.* 18 (2021), no. 5, Paper No. 215, 28 pp. MathSciNet : Mathematical Reviews on the Web. [Spletna izd.]. 2022,

1 spletni vir (mr4309523). ISSN 2167-5163. <http://www.ams.org/mathscinet/pdf/MR4309523.pdf>. [COBISS.SI-ID 132959235]

4. EREMITA, Daniel. Jabeen, Aisha (6-JMI-SHU); Ahmad, Musheer (6-JMI-SHU): Multiplicative Lie triple derivation of triangular 3-matrix rings. (English summary). - Ann. Univ. Ferrara Sez. VII Sci. Mat. 67 (2021), no. 2, 293–308. MathSciNet : Mathematical Reviews on the Web. [Spletna izd.]. 2022, 1 spletni vir (mr4334719). ISSN 2167-5163. <http://www.ams.org/mathscinet/pdf/MR4334719.pdf>. [COBISS.SI-ID 132953347]

5. EREMITA, Daniel. Di Vincenzo, Onofrio M. (I-BASI-MIE); Nardoza, Vincenzo (I-BARI): Differential polynomial identities of upper triangular matrices under the action of the two-dimensional metabelian Lie algebra. (English summary). - Algebr. Represent. Theory 25 (2022), no. 1, 187–209. MathSciNet : Mathematical Reviews on the Web. [Spletna izd.]. 2022, 1 spletni vir (mr4368582). ISSN 2167-5163. <http://www.ams.org/mathscinet/pdf/MR4368582.pdf>. [COBISS.SI-ID 132949763]