Exam History of Science

Date: Tuesday March 28, 2023	Lecturer: dr. D.J. Beckers
Time: 8:30 – 10:45u	Course code: FEW X 400652

In general:

1. Make sure your name and student number are on ALL your work.
2. Answer each question with a story or essay. Spelling and grammar should be correct, either to the English or to the US standards. Always explain yourself. Use appropriate examples to illustrate your answer.
3. This exam consists of 12 A-questions, 8 B-questions and a NO BONUS question. The A-questions are about the lectures and the syllabus. The B-questions require you to reflect.
4. If you're entitled to a bonus, you pick four questions, among which *at least* 1 (one) B-question.
5. If you're *not* entitled to a bonus point, you *also* answer the NO BONUS question.
6. Each A and B question is worth 2 points; the NO BONUS question is worth one point. Indicate clearly which questions you're answering by mentioning either the number and / or the title of the question in your answer. If you answer more than required, only the first answers will be considered.

A-questions

1. Greek mathematics
To what extent did Greek mathematicians build on previous mathematical cultures?

2. Medieval church
Describe two ways in which “the church” contributed to mathematics in medieval Europe.

3. Scientific revolution
In what ways did non-mathematicians influence the status of mathematics in early modernity?

4. Music
To what extent was music in the Enlightenment era a mathematical practice?

5. Pure mathematics
To what extent were early nineteenth century didactical innovations spurred by the rise of pure mathematics?

6. Professionalization
How can the changing role of mathematics in 19th century physics be connected to the professionalization of mathematics?

7. Education
You could state that in the early 20th century, mathematics education and academic mathematics grew apart. In what ways?

8. Turing
In what ways did Alan Turing contribute to mathematics in his 1936 paper on computability?

9. Ford and Taylor
In what ways did mathematics influence the early 20th-century rise of scientific management.

10. Mathematics education
To what extent did late 20th-century mathematics education represent a *mathematical* practice?

11. Cybernetics
In what ways did cybernetics contribute to mathematical practices?

12. Systems thinking
In which way could (or couldn't) you say that trust in systems has taken over from trust in common sense thinking in the early 21st century? Mention at least two specific examples to illustrate your narrative.

B-questions:

1. Cathy O'Neill
Data doesn't necessarily require mathematics, yet it does today. Describe the late 20th century change in the attribution of data, and discuss societal changes that contributed to that change.

2. Accountancy
When did accountancy become a mathematical practice? Discuss the societal change that contributed to this change.

3. Business analyst
Where or when would you start a history of business analysis?

4. Mathematical women
Reflect on the role of women in the history of mathematics.

5. Metric system
In what ways was the introduction and adoption of the metric system a political hurdle?

6. Purification
The rise of pure mathematics changed mathematical practices fundamentally. Reflect on that statement.

7. Digital mathematics?
In what ways did the electronic computer change mathematics?

8. Systems thinking
In what ways may late 20th century systems thinking be considered a mathematical practice?

NO BONUS question:
Explain in what ways *mathesis universalis* was universal.