

ASYR 2710
BABYLONIAN ASTRONOMY

INSTRUCTOR

John Steele, Department of Egyptology and Assyriology

INSTRUCTOR OFFICE HOURS

MONDAY 11.00 – 12:00

COURSE OVERVIEW

This seminar will examine the development and practice of astronomy and the related astral sciences in Babylonia

CURRICULAR CONTEXT

This seminar is aimed at graduate students in the field of Assyriology or the History of the Exact Sciences in Antiquity. A basic knowledge of the Akkadian cuneiform is recommended but not essential. Likewise, some reading knowledge of French and German is recommended.

COURSE AIMS

The course has three main aims:

- To introduce students to the history of Babylonian astronomy, from both technical and cultural perspectives.
- To expose graduate students to current scholarly debates in the history of ancient science and scholarship.
- To encourage students to relate these debates to problems within their own research.
- To develop students' research and writing skills and their familiarity with the scholarly practices of Assyriology and the history of science.

COURSE OBJECTIVES

By the end of the course students should be able to

- Demonstrate the ability to critically read and discuss key scholarship on Babylonian Astronomy.
- Undertake original research on Babylonian astronomy and its place within ancient astronomy and Babylonian scholarship.
- Write a research paper using the appropriate style of a journal in our field.

COURSE STRUCTURE

Each week will be devoted to discussion of a particular topic (see weekly schedule below). The first part of class each week a lecture/discussion led by the instructor. The second part will be split into two parts: in the first part we will use Babylonian astronomical methods ourselves; the second part will be a discussion on the readings led by a student. The student should briefly (no more than 5 minutes) highlight the most significant points in the readings, and prepare at least 4 discussion questions.

ASSESSMENT

Presentation of readings and discussion leadership: 20%

General participation: 10%

Bi-weekly problems (calculating using Babylonian methods, etc): 20%

Research paper outline (due by 18 April): 10%

Research paper (due by 5 May): 40%

- The presentation of readings and discussion leadership will be assessed on the quality of the summary of the weekly reading (both depth of analysis of the reading and clarity of presentation will be considered), the selection of appropriate additional readings, and the quality of posted discussion questions.
- General participation will be assessed on a student's involvement in class discussions and evidence of having read the assigned readings.
- The final paper will be a research paper on a topic related to the course that must be proposed by the student and approved by the instructor by week 8. An outline (no more than 1000 words) of the

paper setting out the research question, methodology, and proposed argument should be submitted by 18 April. The paper should be 5000–8000 words in length, follow the style guidelines (reference styles, transcription conventions etc) of a major Assyriology or History of Science journal, and contain original research and analysis.

ACCESSIBILITY AND ACCOMMODATIONS STATEMENT

Brown University is committed to full inclusion of all students. Please inform me early in the term if you have a disability or other conditions that might require accommodations or modification of any of these course procedures. You may speak with me after class or during office hours. For more information, please contact [Student and Employee Accessibility Services](#) at 401-863-9588 or SEAS@brown.edu. Students in need of short-term academic advice or support can contact one of the deans in the Dean of the College office.

COURSE HOURS AND EXPECTATIONS

Class meetings	39 hours
Weekly class preparation (13 x 10 hours)	130 hours
Problem sets (6 x 3 hours)	18 hours
Essay 1 (research and writing)	20 hours
Essay 2 (research and writing)	30 hours

It is expected that students will attend all of the classes and seminar discussions and arrive on time. All seminar discussions are to be conducted in a supportive, courteous, and inclusive manner - the aim is to learn from one-another not to score points against each-other.

CLASS SCHEDULE AND PRELIMINARY LIST OF READINGS

All readings will be available as pdfs. This list is subject to change.

1. INTRODUCTION, NUMBERS, BASIC NAKED-EYE ASTRONOMY, THE CALENDAR, SOURCES

F. Rochberg, *The Heavenly Writing* (Cambridge: Cambridge University Press, 2004), ch. 1.

J. M. Steele, "How Can We Incorporate Visual Evidence into the History of the Astral Sciences in Mesopotamia?", *NTM* 28 (2020), 305–324.

J. M. Steele, "Explaining Babylonian Astronomy", *Isis* 110 (2019), 292–295.

2. EARLY ASTRONOMICAL AND ASTROLOGICAL TEXTS: ENŪMA ANU ENLIL, MUL.APIN TABLET 1

H. Hunger and J. M. Steele, *The Babylonian Astronomical Compendium MUL.APIN* (Abingdon: Routledge, 2019), 1–19.

de Jong, T., 2007, "Astronomical Dating of the Rising Star List in MUL.APIN", *Wiener Zeitschrift für die Kunde des Morgenlandes* 97, 107–120.

Steele, J. M., "The Use and Abuse of Astronomy in Establishing Absolute Chronologies", *Physics in Canada*, 59 (2003), 243–248.

3. MUL.APIN TABLET 2 AND RELATED MATERIAL

R. Watson and W. Horowitz, *Writing Science Before the Greeks: A Naturalistic Analysis of the Babylonian Astronomical Treatise MUL.APIN* (Leiden, 2011), ch. 2–3 and 5–8.

F. Rochberg, "The History of Science and Ancient Mesopotamia", *Journal of Ancient Near Eastern History* 1 (2013), 37–60.

4. ASTRONOMY IN THE NEO-ASSYRIAN LETTERS AND REPORTS

A. L. Oppenheim, "Divination and Celestial Observation in the Last Assyrian Empire", *Centaurus* 14 (1969), 97–135.

D. Brown, "The Scientific Revolution of 700 BC", in A. MacDonald, M. W. Twomey, and G. J. Reinink (eds.), *Learned Antiquity: Scholarship and Society in the Near-East, the Greco-Roman World, and*

the Early Medieval West (Leuven: Peeters, 2003), 1–12.

5. THE ASTRONOMICAL DIARIES

- A. Sachs, “Babylonian Observational Astronomy”, *Philosophical Transactions of the Royal Society of London*, A 27 (1974)6, 43–50.
F. Rochberg-Halton, “The Babylonian Astronomical Diaries”, *Journal of the American Oriental Society* 111 (1991), 323–332.

6. MEASUREMENT OF POSITION AND TIME: NORMAL STARS, THE ZODIAC, WATER CLOCKS, ZIQU*STARS

- F. Rochberg, *Before Nature* (Chicago: University of Chicago Press, 2016), ch. 7.
E. Robson, “Who Wrote the Astronomical Diaries?”, in J. Haubold, J. M. Steele, and K. Stevens (eds.), *Keeping Watch in Babylon: From Evidence to Text in the Astronomical Diaries* (Leiden: Brill, 2019), 120–153.

7. GOAL-YEAR TEXTS, ALMANACS, NORMAL STAR ALMANACS

- G. Grasshoff, “Globalization of Ancient Knowledge: From Babylonian Observations to Scientific Regularities”, in J. Remm (ed.), *The Globalization of Knowledge in Antiquity*.

8. MATHEMATICAL ASTRONOMY (I): PLANETARY SYSTEMS

- N. M. Swerdlow, *The Babylonian Theory of the Planets* (Princeton: Princeton University Press, 1998), Introduction.
F. Rochberg, *Before Nature* (Chicago: University of Chicago Press, 2016), ch. 8.

9. MATHEMATICAL ASTRONOMY (II): LUNAR SYSTEMS

- O. Neugebauer, “From Assyriology to Renaissance Art”, *Proceedings of the American Philosophical Society* 133 (1989), 391–403.
L. Brack-Bernsen, “The Observational Foundations of Babylonian Astronomy”, in A. C. Bowen and F. Rochberg (eds.), *Hellenistic Astronomy: The Science and its Contexts* (Leiden: Brill, 2020), 171–189.

10. LATE BABYLONIAN SCHEMATIC ASTRONOMY AND ASTROLOGY

- F. Rochberg, *The Heavenly Writing* (Cambridge: Cambridge University Press, 2004), ch. 3 and 5.
J. M. Steele, “Real and Constructed Time in Babylonian Astral Medicine”, in J. Ben-Dov and L. Doering (eds.), *The Construction of Time in Antiquity: Ritual, Art and Identity* (Cambridge: Cambridge University Press, 2017), 69–82.
J. M. Steele, “The Continued Relevance of MUL.APIN in Late Babylonian Astronomy”, *Journal of Ancient Near Eastern History* 8 (2021), 259–277.

11. ASTRONOMY AND ITS USES

- J. M. Steele, “Astronomy and Culture in Late Babylonian Uruk”, in C. L. N. Ruggles (ed.), *Archaeoastronomy and Ethnoastronomy: Building Bridges Between Cultures* (Cambridge: Cambridge University Press, 2011), 331–341.
H. Hunger, “The Relation of Babylonian Astronomy to its Culture and Society”, in D. Valls-Gabaud and A. Boksenberg (eds.), *The Role of Astronomy in Society and Culture* (Cambridge: Cambridge University Press, 2011), 62–73.
P.-A. Beaulieu and J. P. Britton, “Rituals for an Eclipse Possibility in the 8th year of Cyrus”, *Journal of Cuneiform Studies* 46 (1994), 73–86.

12. THE LEGACY OF BABYLONIAN ASTRONOMY IN OTHER CULTURES

- D. Brown, *Mesopotamian Planetary Astronomy-Astrology* (Groningen: Styx, 2000), chapter 5.

F. Rochberg, *The Heavenly Writing* (Cambridge: Cambridge University Press, 2004), ch, 7 and epilogue.