SYLLABUS for course ASTB03 Fall 2022
Title: Great Moments in Astronomy
Lecturer: Prof. Pawel Artymowicz [pron: PAvel artyMOvich]
Location and time of Lectures: Mondays 7-9pm MW 120. No tutorials.

Calendar and planned topics of lectures (L1-L24), assignments (1-4) & exams.

Newton's ideas after Newton, part 2:
Titius-Bode law --> rule
Prediction and discovery of Uranus and Neptune.

7 Nov L15-16:

Great telescopes and their builders: 18-19th century
F.W. Herschel, W. Parsons, J. Lick
Great telescopes and their builders: 20th century
G.E. Hale, Hubble Space Telescope, future telescopes.

14 Nov L17-18: (*** 3rd written assignment due ***)

Adaptive Optics
Early 20th cent. interplay of physics and astronomy:
A. Einstein's theory of relativity and its astronomical proof
A. Eddington and the question of why stars shine

21 Nov L19-20: [also: last drop date w/o acad. penalty]

G. Gamow and his solution to hydrogen fusion problem
W. Fleming, H. Leavitt: finding meter sticks for the universe
The Great Debate in 1920: Heber Curtis and Harlow Shapley.
Edwin Hubble and the world of galaxies. Classification.
Expanding universe: Friedman, Lemaitre
Chandrasekhar's voyage

28 Nov L21-22: (*** 4th written assignment due ***)

Black hole invention in 1800s
Pulsars: Discovery of neutron stars in 1967
Low-mass black holes - endpoints of stellar evolution.
Galaxy mergers and evolution (*)
Supermassive black holes in the centers of galaxies
First (sub)millimeter images of black holes
Incredible direct detection of gravitational waves.

5 Dec L23-24:

The dark dominance: Dark matter
Cosmic Microwave Background Radiation
Dark energy: modern cosmology
Dusty disks: young planetary systems (*)
Habitable and inhabitable: extrasolar planets.

Final exam: TBA