# Tentative Program

## WEEK 1

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<th>Time</th>
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<td>09:00-10:40</td>
<td>Brandt (L1)</td>
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## WEEK 2

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### About assignments:
1. After each lesson, a handout of one to three questions assigned by the lecturer will be distributed to students;  
2. Students work on the question(s) with the guidance of the lecturer and turn in the answer sheet each half day;  
3. All answer sheets will be graded by USTC faculty members;  
4. The top (5%-10%) students with highest total grades will be given a gift or some cash incentive.

### Tentative plan of topics to be covered

**Brandt’s lectures:**  
L1: (general lecture) Introduction, AGN basics, finding AGNs, and terminology  
L2: (general lecture) Observations on small scales: the black hole region, the broad line region, and outflowing winds  
L3: (general lecture) Observations on large scales: the narrow line region, the
torus, jets, and the host galaxy
L4: (focused lecture) AGN demography, physics, and ecology from X-ray surveys
L5: (general lecture) Some outstanding questions and future observational opportunities/challenges

Yuan’s lectures:
L1: Theory of black hole accretion flow
   - Standard thin disk and slim disk
   - Hot accretion flow
L2: Accretion in Sgr A*
L3: Accretion in LLAGNs
L4: Theory of production of jet & winds
L5: Interaction of wind with ISM
   - Fermi bubbles
   - AGN feedback

Ho’s lectures:
L1: AGN host galaxies, scaling relations between black holes and galaxies
L2: Star formation in AGNs, evidence for correlation between SFR and accretion rate
L3: ISM, gas content
L4: Triggers, bars, interactions/mergers; quenching, feedback
L5: Evolution of massive galaxies

Mo’s lectures:
L1: A brief introduction to cosmology and structure formation
L2: The formation and structure of dark matter halos
L3: Gas dynamics and gaseous halos
L4: The formation of individual galaxies
L5: The galaxy population