STARTING GOAL
How can I re-design a General Education Astronomy course (ASTR 111-112: Introductory Astronomy, The Solar System), taught in an Active Learning Technology classroom, using open educational resources (OER) instead of a good but expensive book and its interactive homework system?

COURSE RE-DESIGN ACADEMY (CRA)
Since the Center for Teaching and Learning Excellence (now Stearns Center for Teaching and Learning) organized a re-designing course academy with emphasis on active learning, I thought it would be the ideal starting point for my summer project.

The full course comprised an on-line component, which could be completed over a period of a few weeks, and an intensive face-to-face workshop over two days. I personally found the course very beneficial and useful. From the suggested readings, the constructive discussions, and group exercises I learned the importance of establishing proper student learning outcomes (SLOs) and develop and align Learning Support Tasks (LSTs) and assessments. Overall, I found the course very beneficial and I strongly recommended it to anyone who plans to (re)design a course.

Based on this course and my previous teaching experience, I decided to develop a student-centered course where lower-level cognitive activities are completed out of class, and the class time is dedicated to collaborative and higher-level cognitive activities.

EXAMPLE FROM CRA
Here is an example of SLO – LST - assessment alignment developed during the course and now applied to my astronomy course.

<table>
<thead>
<tr>
<th>Student learning outcomes (SLOs)</th>
<th>Significant, Created Assessment Tasks</th>
<th>Smaller and/or Formative Assessment Tasks</th>
<th>Learning Support Tasks</th>
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</thead>
<tbody>
<tr>
<td>Identify and compare different coordinate systems.</td>
<td>1) Prepare a short presentation on your chosen topic. 2) Develop a question about one of the Week 1 SLOs of your choice and include a graph.</td>
<td>3) Conduct a workshop quiz.</td>
<td>4) Provide learning support manuals and support on the fly.</td>
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<td>SOL 2: All: Analyze common misconceptions about seasons and explain their actual cause.</td>
<td>Write a permission to obtain an image of the stars. What did the rotary telescope on the side of the telescope? Monthly test.</td>
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EXAMPLE OF CLASS ACTIVITY
Every week, one of the activities deals with the SLOs of the previous week. In the one illustrated below, the students had to develop a question about one of the Week 1 SLOs of their choice and include a graph.

Recipe to redesign a course with OER
1) Look for adequate OER for the course (in my case a book, Astronomy OpenStax, and a video series, Crash Course Astronomy).
2) For each week of the course, select the main learning objectives that must be mastered by the students.
3) For each learning objective, devise the weekly student learning outcomes, which must be relevant and generally described by an action verb.
4) For the SLOs, develop learning support tasks, possibly based on collaborative work and requiring higher thinking skills.
5) For the SLOs, develop graded assessment tasks, starting with low-stake collaborative tasks (where the students can make mistakes without consequences) and then evolve into more formal assessments.
6) Develop meaningful homework assignments, which make the text relevant and allow the students to tests their understanding and obtain feedback on weekly basis.