



## RAW MATERIALS AND BREWING PROCESS — BREW 1200

### A. Course Description

- **Credits:** 4.00
- **Lecture Hours/Week:** 2.00
- **Lab Hours/Week:** 2.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

In this course students will learn about the characteristics and variables related to the main ingredients used in the beer brewing process - water, barley/malt, hops, adjuncts, yeast, and other ingredients. The students will also learn more in-depth about the brewing process including equipment and procedures involved in wort production, fermentation, clarification, and filtration.

### B. Course Effective Dates: 1/12/15 – Present

### C. Outline of Major Content Areas

As noted on course syllabus

### D. Learning Outcomes

1. Adjuncts & other ingredients: non-malted grains, sugars, fruit
2. Aging
3. Barley, Malt, and Malting: grain components, types of malt, malting process, malt analysis, malt enzymes, specialty malts
4. Clarification & filtration
5. Fermentation: ales, lagers
6. Hops & Hops Preparation: growing, chemistry, utilization & calculations, fresh (undried) hops
7. Water: source, quality, cost, treatment, contaminants, alkalinity & pH, ions, testing.
8. Wort production: mashing, separation, boiling, clarification & chilling, fermentation
9. Yeast: biology, propagation, storage & handling

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

### F. Learner Outcomes Assessment

As noted on course syllabus

**G. Special Information**

None noted