# Table of Contents

**Introduction** .................................................................................................................. 3  
**The Craft Brewing Industry** .......................................................................................... 3  
**The Craft Brewing Program** .......................................................................................... 3  
  - Bachelor of Science, Craft Brewing ........................................................................... 4  
  - Craft Brewing Certificate ......................................................................................... 4  
**Curriculum** .................................................................................................................. 4  
  - Bachelor of Science, Craft Brewing Curriculum ....................................................... 4  
  - Craft Brewing Certificate Curriculum .................................................................... 6  
**Admission** .................................................................................................................. 6  
**Admission – Bachelor of Science** .................................................................................. 7  
  - Application Process ................................................................................................. 7  
  - Admission Materials ............................................................................................... 8  
  - Submission and Decision ......................................................................................... 9  
  - After Acceptance ..................................................................................................... 9  
**Admission – Certificate** ............................................................................................... 11  
  - Eligibility ............................................................................................................... 11  
  - Admission Materials ............................................................................................. 11  
  - Submission and Decision ....................................................................................... 12  
  - After Acceptance .................................................................................................... 12  
**Facilities** ..................................................................................................................... 14  
  - Brewing Research Laboratory .................................................................................. 14  
**Student Professional Ethics & Conduct** ....................................................................... 14  
  - Code of Conduct .................................................................................................... 14  
  - Resources ............................................................................................................... 15  
**Jobs** .............................................................................................................................. 15  
**Forms & Documents** .................................................................................................... 16  
  - Degree Related Forms: .......................................................................................... 16  
  - Certificate Related Forms: ..................................................................................... 16
Welcome to the Craft Brewing Program at Central Washington University!
This handbook is designed for Craft Brewing students as quick reference guide to vital information about the program’s policies and procedures. Furthermore, this handbook will assist you in completing either the certificate or Bachelor of Science degree in Craft Brewing. This handbook is to be used in conjunction with, but not as a substitute for the official CWU catalog, class schedule, and all applicable CWU student requirements. It is your responsibility to become familiar with pertinent dates, deadlines, rules, and regulations contained in the catalog and class schedule. Please visit www.cwu.edu/registrar/catalogs to access the electronic version of the CWU catalog.

The Craft Brewing Industry

According to the Brewer’s Association definition, craft breweries are small, independent, and traditional breweries that focus on use of ingredients. America’s appetite for craft beers is growing like never before - sales of craft beers grew by more than 17% in 2014, contributing $19.6 billion dollars to the overall beer market of $101.5 billion. As of 2014, there were in excess of 3,400 breweries in the United States, the highest number in more than 100 years. Washington State is home to more than 250 breweries, ranking it second nationally behind California.

With 3,418 craft breweries operating in 2014, there is a definite need for professionals in the field – Small brewing companies employed approximately 115,469 people in 2014. This is a 4.3% increase from 110,738 jobs in 2013. A major challenge for this growing industry is finding properly qualified employees for their growing businesses. Not only are brewers needed, but also graduates from other academic disciplines who have an understanding of the craft beer industry. Furthermore, CWU is located near one of the world’s most productive hop growing regions, Yakima, Washington.

The Craft Brewing Program

CWU Craft Brewing began in 2009 with a partnership between the office of Continuing Education and the College of The Sciences to develop the Craft Brewing Certificate. This certificate program was designed by CWU Faculty, with feedback from an Advisory Board composed of industry professionals, to address the industry’s need for skilled and educated professionals in craft brewing. Five years and approximately 60 certificate graduates later, a Bachelor of Science in Craft Brewing was created.
The interdisciplinary degree, which incorporates the certificate program into its core, was approved on April 20, 2015 by the CWU Board of Trustees.

**Bachelor of Science, Craft Brewing**

The Bachelor of Science, Craft Brewing degree provides students with an in-depth understanding of the brewing industry. It is built upon a strong foundation in science and is focused on providing students with content, experience, and skills in brewing science, analytical laboratory techniques, quality assurance, and management. Additionally, courses incorporate hands-on and inquiry based learning opportunities through case studies, pilot brewing, field trips, industry speakers, and research activities. The program prepares graduates for a career in the brewing production, quality assurance, brewery management, beer merchandising, distribution, brewing technology, packaging, safety, sanitation, sensory evaluation, and entrepreneurship. This is an interdisciplinary program involving departments and faculty across the university that is administered in the College of Sciences.

**Craft Brewing Certificate**

The Craft Brewing Certificate is a year-long, 16-credit interdisciplinary certificate program that provides an overview of biochemistry, microbiology, technology, and business aspects of the craft brewing industry. The program spans three quarters (30 weeks) and is designed to be challenging and interactive. Students learn by using a variety of approaches including lab work, hands on experience, lectures, field trips, and industry speakers.

**Curriculum**

The Curriculum for both the Bachelor of Science and Certificate was developed through consultation with industry professionals that belong to the Craft Brewing Advisory Board as well as through the American Brewer’s Association.

**Bachelor of Science, Craft Brewing Curriculum**

Curriculum for the Bachelor of Science, Craft Brewing was developed through consultation with the Master Brewer’s Association of America. The following are the classes required for the major. Completing these classes does not guarantee admission to the Craft Brewing degree program. You must be accepted into the major before you can take the Advanced Craft Brewing Core classes.
Basic and Breadth Requirement Courses Credits: 10

- ECON 201  Principles of Economics Micro Credits: (5)

Choose one of the following mathematics courses: 5 credits

- MATH 153  Pre-calculus Mathematics I Credits: (5)
- MATH 154  Pre-calculus Mathematics II Credits: (5)
- MATH 170  Intuitive Calculus Credits: (5)
- MATH 172  Calculus I Credits: (5)

Professional Core Requirement Credits: 31

- CHEM 111  Introduction to Chemistry Credits: (4)
- CHEM 111LAB  Introductory Chemistry Laboratory Credits: (1)
- CHEM 112  Introduction to Organic Chemistry Credits: (4)
- CHEM 112LAB  Introduction to Organic Chemistry Laboratory Credits: (1)
- CHEM 113  Introduction to Biochemistry Credits: (4)
- CHEM 113LAB  Introduction to Biochemistry Laboratory Credits: (1)
- ADMG 201  Introduction to Business Credits: (3)
- SHM 325  Manufacturing Safety and Health Credits: (3)

Select from the following sequences: 10 Credits

- PHYS 111  Introductory Physics Credits: (4)
- PHYS 111LAB  Introductory Physics Laboratory Credits: (1)
- PHYS 112  Introductory Physics II Credits: (4)
- PHYS 112LAB  Introductory Physics Laboratory II Credits: (1)

OR

- PHYS 181  General Physics Credits: (4)
- PHYS 181LAB  General Physics Laboratory Credits: (1)
- PHYS 182  General Physics II Credits: (4)
- PHYS 182LAB  General Physics Laboratory II Credits: (1)

Required Advanced Craft Brewing Core Courses: Credits 31

- CRBW 312  Brewing Microbiology Credits: (4)
- CRBW 317  Brewing Processes and Biochemistry Credits: (4)
- CRBW 450  Sensory Analysis for Brewing Credits: (5)
- RMT 320  Merchandising and Management for Microbrewing Credits: (5)
- CRBW 470  Current Topics in Brewing Credits: (3)
- IET 360  Brew Process Technology Credits: (3)
- CRBW 499  Brewing Seminar Credits: Credits: (2)

Choose one of the following: 5 Credits

- CRBW 490  Cooperative Education Credits: (5)
- CRBW 495  Brewing Research Methods Credits: (5)

Total Credits: 72
Craft Brewing Certificate Curriculum

The certificate is composed of four ten-week classes over the course of 1 academic year. Classes are held in the evening and meet two times per week. Students should plan on starting in the fall and expect to complete the program in the spring; exceptions may be made based on the applicant’s skills and knowledge level. In order to receive the certificate, students must earn a grade of B- or above in each of the four courses. All classes are face to face and held on the Ellensburg Campus.

<table>
<thead>
<tr>
<th>Term</th>
<th>Prefix</th>
<th>Credits</th>
<th>Class Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>CRBW</td>
<td>4</td>
<td><strong>Principles and Biochemistry of Brewing:</strong> Raw materials, enzymes, proteins, wort production, hop analysis, &amp; sensory evaluation.</td>
</tr>
<tr>
<td>Winter</td>
<td>RMT</td>
<td>5</td>
<td><strong>Merchandising Management for Micro Brewing:</strong> Selling process, operations management, distribution process, behavioral concepts, &amp; creating a business plan.</td>
</tr>
<tr>
<td>Spring</td>
<td>IET</td>
<td>3</td>
<td><strong>Brew Process Technology:</strong> Understanding the brew house, efficiency, heating &amp; cooling, wort transfer, cleaning, &amp; packaging techniques.</td>
</tr>
<tr>
<td>Spring</td>
<td>CRBW</td>
<td>4</td>
<td><strong>Brewing Microbiology:</strong> Microbiological techniques, yeast biology, wild yeasts, yeast production, microorganisms in the brewery, &amp; sanitation.</td>
</tr>
</tbody>
</table>

Admission

Each year, the Craft Brewing program, receives more requests for admission from students than can be accommodated. Hence, admission to the Craft Brewing program is limited and based on a competitive admission process. The Craft Brewing admission requirements ensure that each student admitted to the program, be it the certificate or the degree, has the potential, intellectual capacity, interest, and drive to succeed in the program, and to continue on to a successful career in the Craft Brewing industry.
Admission – Bachelor of Science

Application Process
Admission into the Craft Brewing Major is a four step process:

1. **CWU Admission:** Apply and be admitted to CWU. Please note admission to the degree is separate from admission to the university. The deadline to apply for the degree and begin fall quarter is August 1st. Applying early is suggested; Acceptance is limited and students are evaluated on a competitive basis with their qualifications. Students may be waitlisted if maximum enrollment is met. We will notify students by email of their application status once all steps have been completed.

2. **Craft Brewing Pre-major:** Meet with a Craft Brewing faculty advisor to obtain information about the Craft Brewing major and career prospects during the school year. If you are still interested in the major, you may apply at any time for pre-major status by completing the Craft Brewing Degree Application (http://www.cwu.edu/sciences/craft-brewing-degree-application) and choosing “Declare my pre-major” in the “I Would like to” drop-down menu. A pre-major student generally has freshman or sophomore standing or is a recent transfer from a community college or other university. A pre-major has not completed the required prerequisite coursework and applied for acceptance as a major.

3. **Craft Brewing Prerequisite Coursework:** Students wishing to attain full admission to the BS in Craft Brewing must complete the following 12 courses with a grade of C or better and meet the following requirements (Before full admission students can be declared as a pre-Brewing Major). If you are under 21 you can apply as a pre-major and take basic breadth courses and the prerequisite courses before you become of age.

   - Successful completion of the following classes with a C (2.0) or better in each course before being admitted to the major:

     1. CHEM 111 Introduction to Chemistry
     2. CHEM 111LAB Chemistry Laboratory
     3. CHEM 112 Introduction to Organic Chemistry
     4. CHEM 112LAB Introduction to Organic Chemistry Laboratory
     5. CHEM 113 Introduction to Biochemistry
     6. CHEM 113LAB Introduction to Biochemistry Laboratory
     7. Math 153 or its equivalent
     8. Econ 201 Principles of Economics Micro
     9. PHYS 111 Introductory Physics
     10. PHYS 111LAB Introductory Physics Laboratory
     11. PHYS 112 General Physics
     12. PHYS 112LAB
Overall minimum 2.5 GPA will be required for admission.

Student must be at least 21 years old before enrolling in courses that may involve tasting beer (CRBW 317 Brewing Processes and Biochemistry (5), CRBW 350 Sensory Analysis for Brewing (5), CRBW 496 Brewing Special Topics (3), CRBW 498 Brewing Research (5), and CRBW 499 Brewing Seminar (2)).

Students are highly encouraged to also obtain a minor or degree in Biology, Chemistry, Administrative Management, Industrial Technology, or Safety and Health Management and complete at least five credits of CRBW 490, Cooperative Education.

4. **Major Application:** Apply for entry into the Craft Brewing major by submitting the completing the Craft Brewing Degree Application found on the Craft Brewing website with the required admission materials as listed below attached.

**Admission Materials**

1. **Application:** A completed Craft Brewing Degree Application. The webform can be found at [http://www.cwu.edu/sciences/craft-brewing-degree-application](http://www.cwu.edu/sciences/craft-brewing-degree-application)

2. **Personal Statement:** A 1-2 page personal statement (essay) which includes information about your experience in brewing or homebrewing, your leadership, math and chemistry skills, business experience and work ethic, anticipated career path and why you are a good candidate for the program. Your essay may also provide additional clarification on important details in your application, such as honors, awards, or deficiencies in your student record. Please consider grammar and spelling when submitting your essay.

3. **Resume:** A current resume, with a brief description of your work experience (position title and job functions).

4. **Unofficial or Official Transcripts:** Please attach unofficial transcripts to your application. You may also have official transcripts sent to the Craft Brewing program office:

   CWU Craft Brewing Program
   400 E University Way
   Ellensburg, WA 98926-7433
5. **Code of Conduct**: Please carefully read and electronically sign (via the Acknowledgement) the Craft Brewing Program Code of Conduct located within the Craft Brewing Degree Application webform.

**Submission and Decision**

The deadline to submit your application to the major and begin in the fall is July 1st. Enrollment in the program is limited. Early applications are suggested. Incomplete submissions will not be considered for admission. Upon submission, you will receive an application receipt notification via email. Please contact us if you did not receive this notification.

The decision will be communicated to each applicant via email. Those who have been accepted into the program will be notified via email and postmarked mail. Some applicants with deficiencies may be accepted conditionally and will be expected to make up deficiencies in their record (e.g. low grade in chemistry prerequisite).

**After Acceptance**

**Advising**

- After you have been accepted into the program, an advisement meeting is **required** during the academic school year (not summer). To arrange an appointment please contact:

  Dr. Steve Wagner, Ph.D.  
  Director, Craft Brewing Program  
  WagnerS@cwu.edu

**MyCWU**

MyCWU is a single sign-on service where students login to access their records, email and many other valuable tools. To login, visit [www.cwu.edu](http://www.cwu.edu) and click on the MyCWU link at the upper right-hand side of the page. For instructions on the MyCWU system, visit [http://www.cwu.edu/registrar/accessing-mycwu](http://www.cwu.edu/registrar/accessing-mycwu).

- You can view and manage your enrollment status, class schedule, financial statement, drop from a class, campus email, and other information by visiting [www.cwu.edu](http://www.cwu.edu) and clicking the MyCWU link at the top of the page. For technical assistance call the Help Desk at 509-963-2001.
Campus Email

- Campus email is assigned to all students and is Central’s official communication tool. Please become familiar with the email as it will be used frequently throughout the program.

CWU Connection Card:

The Connection Card at CWU is the official Student, Faculty and Staff ID card and has the following important uses on campus:

- CWU Library book and laptop check out
- Photocopy card at the library
- Door access for Residence Halls and Academic Buildings
- Debit card for Housing laundry facilities
- Laptop check out in the SURC
- Meal Card for all Dining Services locations
- Access to the Recreation Center and equipment checkout in the SURC
- Admission to sporting events, concerts, theater productions, and more
- Use in University Store as a debit card and to student charge item
- All students, faculty and staff are required to have a CWU Connection Card.

Get Connected! All students, faculty and staff are required to have a CWU Connection Card. These cards are free the first time (there is a small fee for replacement of lost cards). Connection Cards can be picked at The Connection Card Office, located in the SURC (Student Union and Recreation Center building) room 131, next to CWU’s Radio Station, 88.1 The ‘Burg. If you have any questions you may contact (509) 963-2711 or email us at concard@cwu.edu.

Tuition & Fees

- CWU’s regular tuition rates are applied to the Bachelor of Science degree. Additional fees may also apply. For more information on CWU’s tuition & mandatory fees, please visit [http://www.cwu.edu/registrar/tuition-and-mandatory-fees](http://www.cwu.edu/registrar/tuition-and-mandatory-fees).
- Student’s tuition and fees will not be removed due to non-attendance. Official withdrawal procedures must be followed. See the refund policy in the Registration Handbook, pg. 10-12, located here: [http://issuu.com/teriolin/docs/2015-2016_registration_handbook/1](http://issuu.com/teriolin/docs/2015-2016_registration_handbook/1)
- Tuition will be posted to your student account and is due the 5th day of class.
Admission – Certificate

Open to the public, students may participate in the certificate program as a non-matriculated or matriculated student. Interested students will apply directly to the office of Continuing Education via the online application. The deadline to apply and begin fall quarter is July 1st.

Eligibility

The following requirements must be met to be accepted:

- Be 21 years of age or older.
- A minimum overall college GPA of 2.5.
- Completed one of the following: College level chemistry (Chemistry 101, Chemistry 111, or Chemistry 181) or equivalent.
- Completed college level pre-calculus (Math 153) or equivalent.
- Work experience may substitute for the above academic prerequisites and is subject to evaluation by the advisor.

Students will be notified of acceptance to the program and will be automatically enrolled in all classes by the office of Continuing Education after acceptance. Enrollment is limited and accepted on a first come, first serve basis. Early registration is suggested. After meeting the eligibility requirements, students must submit the following admission materials to apply:

Admission Materials

1. **Application:** A completed Craft Brewing Certificate Application. The webform can be found at [http://www.cwu.edu/ce/craft-brewing-certificate-application](http://www.cwu.edu/ce/craft-brewing-certificate-application).

2. **Personal Statement:** A 1-2 page personal statement (essay) which includes information about your experience in brewing or homebrewing, your leadership, math and chemistry skills, business experience and work ethic, anticipated career path and why you are a good candidate for the program. Your essay may also provide additional clarification on important details in your application, such as honors, awards, or deficiencies in your student record. Please consider grammar and spelling when submitting your essay.

3. **Resume:** A current resume, with a brief description of your work experience (position title and job functions).
4. **Unofficial or Official Transcripts**: Please attach unofficial transcripts to your application. You may also have official transcripts sent to the Craft Brewing program office:

   CWU Craft Brewing Program  
   400 E University Way  
   Ellensburg, WA 98926-7433

5. **Code of Conduct**: Please carefully read and electronically sign (via the Acknowledgement) the Craft Brewing Program Code of Conduct located within the Craft Brewing Certificate Application webform.

**Submission and Decision**

The deadline to submit your application and begin fall quarter is July 1st. Enrollment in the certificate program is limited, early applications are suggested. Incomplete submissions will not be considered for admission. You will receive an application receipt notification via email. Please contact us if you did not receive this notification.

The decision will be communicated to each applicant via email. Those who have been accepted into the program will be notified via email and postmarked mail. Accepted students will be automatically enrolled in all 4 certificate classes by the office of Continuing Education after acceptance.

**After Acceptance**

**Advising**

- An advising meeting is **not** required for the certificate program. However, general advising questions can be sent to Dr. Wagner, Director of CWU Craft Brewing:

  Dr. Steve Wagner, Ph.D.  
  Director, Craft Brewing Program  
  WagnerS@cwu.edu

**MyCWU**

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- After acceptance, a letter from the Registrar’s will be sent to you with your MyCWU username. This important username will allow you to access the MyCWU portal. A
MyCWU password and log in instructions will be emailed to you. If you do not receive this letter and email, call Registrar’s at 509-963-3001.

- Once you have logged on to MyCWU, MyCWU will display your Admissions Tab on the left hand toolbar. It is here that you can check your application status and Accept Admission by clicking ACCEPT under the Accept Admission link to be fully enrolled into the certificate program. **Please note that until you accept admission, you will not be fully enrolled in the certificate program.**

- You can view and manage your enrollment status, class schedule, financial statement, drop from a class, campus email, and other information by visiting MyCWU. For technical assistance call the Help Desk at 509-963-2001.

**CWU Campus Email**

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- Door access for Residence Halls and Academic Buildings
- Debit card for Housing laundry facilities
- Laptop check out in the SURC
- Meal Card for all Dining Services locations
- Access to the Recreation Center and equipment checkout in the SURC
- Admission to sporting events, concerts, theater productions, and more
- Use in University Store as a debit card and to student charge item
- All students, faculty and staff are required to have a CWU Connection Card.

Get Connected! All students, faculty and staff are required to have a CWU Connection Card. These cards are free the first time (there is a small fee for replacement of lost cards). Connection Cards can be picked at The Connection Card Office, located in the SURC (Student Union and Recreation Center building) room 131, next to CWU’s Radio Station, 88.1 The 'Burg. If you have any questions you may contact (509) 963-2711 or email us at concard@cwu.edu.
Tuition & Fees

- Tuition & Fees for the certificate program differ from CWU regular tuition rates and are subject to change. Additional fees may also apply. Tuition waivers are not allowed.
- Student’s tuition and fees will not be removed due to non-attendance. Official withdrawal procedures must be followed. See the refund policy in the Registration Handbook, pg. 10-12, located here: [http://issuu.com/teriolin/docs/2015-2016_registration_handbook/1](http://issuu.com/teriolin/docs/2015-2016_registration_handbook/1)
- The 2015-2016 tuition for the craft beer certificate program will be $393.97 per credit for both residents and non-residents. An additional non-matriculated student fee of $40 will be applied. University mandatory fees will be incurred for this program.
- Tuition will be posted to your student account and is due the 5th day of class.
- For more information on the Certificate tuition & fees, please visit the Craft Brewing Program website at www.cwu.edu/sciences/craft-brewing.

Facilities

**Brewing Research Laboratory**

The Brewing Research Laboratory is located north of the CWU Ellensburg Campus off Airport Road. The BRL houses the Craft Brewing program’s pilot brewing research equipment, office space, classroom, and conference room/brewing library. Students are encouraged to utilize this facility.

A few important things in regards to the Brewing Research Laboratory:

1. The lab may be available to you for brewing and other research with approval from the Craft Brewing Lab Coordinator, Dr. Steve Wagner.
2. You are not allowed to remove any item from the lab without following proper lab checkout procedures. Please see Brewing Equipment Use section below.
3. You will be responsible for any lost or damaged items and a charge may be placed on your student account and your access can be restricted.
4. Please be respectful of the Brewing Research Lab, its equipment and resources. You are responsible for cleaning up after your activities.

Student Professional Ethics & Conduct

**Code of Conduct**

(1) Craft Beer Trade Certificate Program Code of Conduct
Each participant’s conduct reflects on the reputation of one’s self, Central Washington University, the Craft Beer Trade Certificate Program, and other graduates of the program. Students and graduates are expected to be sensitive to the cultural and behavioral issues associated with overconsumption and misuse of alcohol. Students and graduates should not engage in inappropriate behavior regarding the use, sale or promotion of alcohol and furthermore abide by federal, state and local laws and regulations regarding alcohol. Any misuse of alcohol during the program will result in student dismissal from the program. If at any time you feel you may be effected in your day to day life, or feel you have any concern regarding alcohol, you should notify a CWU staff or faculty member.

*Disclaimer: all policies and procedures are regularly updated by the Office of the President.*

**Resources**

Below is a list of local resources if you feel you may need assistance:

<table>
<thead>
<tr>
<th>On-Campus Resources</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildcat Wellness Center</td>
<td>509-963-3214</td>
</tr>
<tr>
<td>Student Medical and Counseling Clinic Services</td>
<td>509-963-1391</td>
</tr>
<tr>
<td>Community Counseling &amp; Psychological Assessment Center</td>
<td>509-963-2301</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Off-Campus Resources</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Drug Dependency Services</td>
<td>509-925-9821</td>
</tr>
<tr>
<td>Barth and Associates</td>
<td>509-933-1388</td>
</tr>
<tr>
<td>Central Washington Comprehensive Mental Health</td>
<td>509-925-9861</td>
</tr>
</tbody>
</table>

**Jobs**

CWU Craft Brewing is dedicated to helping students succeed both during and after their time spent with the program. We regularly post job opportunities on our Facebook page, CWU Craft Brewing at [www.facebook.com/CraftBeerEdu](http://www.facebook.com/CraftBeerEdu) and send opportunities to students through CWU Email.
Forms & Documents

The following documents have been attached to this handbook to assist you. For questions about these forms, please contact CraftBrewing@cwu.edu.

Degree Related Forms:
- Craft Brewing Major Admission Requirements Worksheet
- Craft Brewing Major Requirements
- B.S. Craft Brewing - Four Year Plan Example

Certificate Related Forms:
- Craft Brewing Certificate Requirements Worksheet
Students wishing to attain full admission into the BS in Craft Brewing must meet the following requirements. (Before full admission, students can be a pre-brewing major).

Successful completion of the following classes with a C (2.0) or better in each course before being admitted to the major:

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111 – Introduction to Chemistry</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 111LAB – Introductory Chemistry Laboratory</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 112 – Introduction to Organic Chemistry</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 112LAB – Introduction Organic Chemistry Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 113 – Introduction to Biochemistry</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 113LAB – Introduction Biochemistry Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 153 – Pre-Calculus</td>
<td>5</td>
<td></td>
<td></td>
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<tr>
<td>ECON 201 – Principles of Economics Micro</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 111 – Introductory Physics</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 111LAB – Introductory Physics Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 112 – Introductory Physics II</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 112LAB – Introductory Physics II Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Overall minimum 2.5 GPA will be required for admission:**

OVERALL GPA: ______________________

**Students must fill out an application that includes their professional resumé as well as professional statement that addresses the following:**

- Experience in brewing or homebrewing
- Career goals
- Leadership and work ethic
- Why you would be a good candidate for the program

**Student must be at least 21 years old before enrolling in courses that may involve tasting beer:**

- CRBW 317 Brewing Processes and Biochemistry (5)
- CRBW 350 Sensory Analysis for Brewing (5)
- CRBW 496 Brewing Special Topics (3)
- CRBW 498 Brewing Research (5)
- CRBW 499 Brewing Seminar (2)

**Students are highly encouraged to also obtain a minor or degree in Biology, Chemistry, Administrative Management, Industrial Technology or Safety & Health Management; and complete at least 5 credits of CRBW 490, Cooperative Education.**
# B.S. Craft Brewing Requirements

**Central Washington University**

Credits (72)

## Prerequisites (10 Credits)

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201 – Principles of Economics Micro</td>
<td>5</td>
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</table>

*Choose one of the following math courses: 5 Credits*

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 153 – Pre-calculus Mathematics I</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MATH 154 – Pre calculus Mathematics II</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MATH 170 – Intuitive Calculus</td>
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</tr>
<tr>
<td>MATH 172 – Calculus I</td>
<td>5</td>
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</table>

## Professional Core Requirements (31 Credits)

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111 – Introduction to Chemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 111LAB – Introductory Chemistry Laboratory</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CHEM 112 – Introduction to Organic Chemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 112LAB – Introduction Organic Chemistry Lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CHEM 113 – Introduction to Biochemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 113LAB – Introduction Biochemistry Lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ADMG 201 - Introduction to Business</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SHM 325 – Manufacturing Safety and Health</td>
<td>3</td>
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</table>

*Select from the following sequences: 10 Credits*

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
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</thead>
<tbody>
<tr>
<td>PHYS 111 – Introductory Physics</td>
<td>4</td>
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</tr>
<tr>
<td>PHYS 111LAB – Introductory Physics Lab</td>
<td>1</td>
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</tr>
<tr>
<td>PHYS 112 – Introductory Physics II</td>
<td>4</td>
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</tr>
<tr>
<td>PHYS 112LAB – Introductory Physics II Lab</td>
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</tr>
</tbody>
</table>

*OR*

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 181 – General Physics</td>
<td>4</td>
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</tr>
<tr>
<td>PHYS 181LAB – General Physics Lab</td>
<td>1</td>
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</tr>
<tr>
<td>PHYS 182 – General Physics II</td>
<td>4</td>
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</tr>
<tr>
<td>PHYS 182LAB – General Physics II Lab</td>
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## Required Advanced Craft Brewing Core Courses (31 Credits)

<table>
<thead>
<tr>
<th>Class NO. and Title</th>
<th>Credits</th>
<th>Qtr. Taken</th>
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</thead>
<tbody>
<tr>
<td>CRBW 312 - Brewing Microbiology</td>
<td>4</td>
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</tr>
<tr>
<td>CRBW 317 – Brewing Processes and Biochemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CRBW 450 – Sensory Analysis for Brewing</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>RMT 320 – Merchandising and Management for Microbrewing</td>
<td>5</td>
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</tr>
<tr>
<td>IET 360 Brew Process Technology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CRBW 498 Brewing Special Topics</td>
<td>3</td>
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</tr>
<tr>
<td>CRBW 490 – Cooperative Education</td>
<td>5</td>
<td></td>
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</table>

*OR CRBW 495 Brewing Research Methods* | 5 |
| CRBW 499 Brewing Seminar | 2 |
# B.S. Craft Brewing: Example 4-Year Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>CR</th>
<th>Course</th>
<th>CR</th>
<th>Course</th>
<th>CR</th>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>MATH 153 Pre-Calculus Math 1</td>
<td>5</td>
<td>ENG 101 Composition I</td>
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<td>ENG 102 Composition II</td>
<td>4</td>
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<tr>
<td>CHEM 111 General Chemistry</td>
<td>4</td>
<td>CHEM 112 Organic Chemistry</td>
<td>4</td>
<td>Chem 113 Biochemistry</td>
<td>4</td>
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<tr>
<td>CHEM 111LAB General Chemistry Lab</td>
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<td>CHEM 112LAB Organic Chemistry Lab</td>
<td>1</td>
<td>Chem 113LAB Biochemistry Lab</td>
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<tr>
<td>Basic/Breadth course</td>
<td>3-5</td>
<td>Basic/Breadth course</td>
<td>4-5</td>
<td>Basic/Breadth course</td>
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<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td>13-15</td>
<td><strong>TOTAL CREDITS</strong></td>
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<td><strong>TOTAL CREDITS</strong></td>
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<tr>
<td>ADMG 201 Introduction to Business</td>
<td>3</td>
<td>ECON 201 Principles of Economics-Micro</td>
<td>5</td>
<td>SHRM 325 Manufacturing Safety and health</td>
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<tr>
<td>PHYS 111 Introductory Physics</td>
<td>4</td>
<td>PHYS 111 General Physics</td>
<td>3</td>
<td>Basic/Breadth course</td>
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<tr>
<td>PHYS 111LAB Introductory Physics Lab I</td>
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<td>PHYS 111LAB General Physics Lab</td>
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<tr>
<td>Basic/Breadth course</td>
<td>4-6</td>
<td>Basic/Breadth course</td>
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<td><strong>TOTAL CREDITS</strong></td>
<td>13-15</td>
<td><strong>TOTAL CREDITS</strong></td>
<td>13-15</td>
<td><strong>TOTAL CREDITS</strong></td>
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<tr>
<td>CRBW 317 Brewing Processes &amp; Biochem</td>
<td>4</td>
<td>ITAM 320 Merchandising and management</td>
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<td>CRBW 312 Brewing Microbiology</td>
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<td>Elective to reach 180 credits</td>
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<td>CRBW 350 Sensory Analysis for Brewing</td>
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<td>IET 360 Brew Process Technology</td>
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<td>Basic/Breadth course</td>
<td>3-5</td>
<td>Basic/Breadth course</td>
<td>3-5</td>
<td>Basic/Breadth course</td>
<td>3-5</td>
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<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td>13-15</td>
<td><strong>TOTAL CREDITS</strong></td>
<td>13-15</td>
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<td>13-15</td>
<td><strong>TOTAL CREDITS</strong></td>
<td>13-15</td>
</tr>
<tr>
<td>CRBW 495 or CRBW 490 Research or Cooperative Learning</td>
<td>5</td>
<td>CRBW 498 Brewing Special Topics</td>
<td>3</td>
<td>CRBW 499 Brewing Seminar</td>
<td>2</td>
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<tr>
<td>Elective to reach 180 Credits</td>
<td>10</td>
<td>Elective to reach 180 Credits</td>
<td>10</td>
<td>Electives to reach 180 Credits</td>
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<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td>15</td>
<td><strong>TOTAL CREDITS</strong></td>
<td>15</td>
<td><strong>TOTAL CREDITS</strong></td>
<td>15</td>
<td><strong>TOTAL CREDITS</strong></td>
<td>15</td>
</tr>
</tbody>
</table>

*Pre-req either MATH 100C with a grade of C or higher; or a score of 18 or higher on the Intermediate Math Placement Test, or a score of 66 or higher on the Compass Algebra test
In lieu of MATH 153 you could take a higher math course MATH 154, MATH 170, or MATH 172. It is recommended you take the highest level of math you qualify for.

# must be 21 to take this course and be admitted to the brewing program

** must be admitted to brewing program

*** It is recommended that students pursue a minor in Biology, Chemistry, Business, or IED or take courses in consultation with your advisor relevant to your career goals.

Basic Skills Course Requirements: 21-23 credits by the end of the quarter in which 75 credits earned are reached.

Breadth Course Requirements: 39-45 Credits.
Central Washington University

Craft Brewing Certificate Admission Requirements

Students wishing to attain admission into the Craft Brewing Certificate program must meet the following requirements:

Student Name: _______________________

CWU ID: _______________________

Student Email: _______________________

Advisor: _______________________

Office and Office hours: _______________________

Advisor Email: _______________________

Office Phone: _______________________

Successful completion of the following classes with a C (2.0) or better in each course before being admitted:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Qtr. Taken</th>
<th>Grade</th>
</tr>
</thead>
</table>

One of the following College level chemistry courses or their equivalent:

- CHEMISTRY 101
- CHEMISTRY 111
- CHEMISTRY 181

Completed College level pre-calculus:

- MATH 153 – Pre-Calculus
- Or equivalent

- Student must be at least 21 years old
- Overall minimum 2.5 GPA will be required for admission.
- Students must fill out an application that includes their professional resumé as well as professional statement that addresses the following:
  - Experience in brewing or homebrewing
  - Career goals
  - Leadership and work ethic
  - Why you would be a good candidate for the program
- Upon admittance to the program students must agree to sign a written statement regarding professional conduct and responsibility.
- *Work experience may be substituted for the above academic prerequisites and is subject to evaluation by the advisor.

Central Washington University