

## PROPOSAL TO OFFER A NEW DEGREE PROGRAM\*

**Proposals will only be accepted electronically as a Word document to the Office of the Provost when submitted to [provost.deg.changes@wsu.edu](mailto:provost.deg.changes@wsu.edu)**

*\*If a new unit will be created to offer the proposed degree, a notice of intent to establish the new unit (program, department, or school) will also be required.*

***This proposal will be circulated to other institutions in the state via the Interinstitutional Committee for Academic Program Planning (ICAPP). You may be asked to interact with other institutions if they have questions or concerns.***

Degree Title:	MS Viticulture and Enology
Academic Program:	
Academic Plan:	
Number of Credits:	30
Department(s) or Program(s):	Department of Viticulture and Enology
College(s):	CAHNRS
Campus(es):	Tri-Cities
Method of Instructional Delivery:	In-Person

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***\*Proposed Start Date: Approval must be received from the Northwest Commission on Colleges and Universities before the program may be advertised or recruited for. Financial aid may not be available until the program has been approved by the Department of Education subsequent to NWCCU approval. Approval notification will be sent by the Office of the Provost and Executive Vice President.***

### Proposal

#### Mission and Strategic Goals:

Provide a clear statement of the nature and purposes of the new degree in the context of WSU's mission and strategic plan.
The Master of Science (MSc) in Viticulture and Enology at WSU is a research-based graduate degree designed to align with the university's mission to advance knowledge, innovation, and economic growth through high-quality education and research. This program supports WSU's strategic plan by training students in the scientific and experimental methods necessary to address the evolving challenges in the grape and wine industry, a key economic driver for Washington State. With a minimum of 30 total credit hours, the program provides a rigorous education that balances theoretical knowledge with hands-on research experience. The degree prepares graduates to take on leadership roles in the wine industry, managing complex projects, addressing issues such as climate change, sustainability, and innovation, or continuing to pursue doctoral-level research. The MSc in Viticulture and Enology directly fosters a highly skilled workforce that supports the economic vitality of the state's growing agricultural sector while positioning WSU as a leader in global viticulture and enology research and education.

## Educational Offerings\*:

Describe the degree program, including the total number of credits required. Provide the four-year degree plan (undergraduate) or appropriate plan of study (graduate and professional).

*\*Please note that all courses for the degree must be approved before the degree will be reviewed by the Catalog Subcommittee.*

The Master of Science (MSc) in Viticulture and Enology is a research-based graduate program designed to provide students with advanced scientific knowledge and practical experience in the grape and wine industry. The degree emphasizes the development of research skills through a formal research project, culminating in a written thesis. Students will be trained in experimental methods, preparing them to manage major projects in the viticulture and enology sectors or to pursue doctoral-level studies.

### DEGREE CREDIT REQUIREMENTS

- **Total Credit Hours:** Minimum of 30 credits
- **Graded Coursework (A-F):** A minimum of 21 credits must come from graded coursework, which may include up to 6 credits of upper-division (300-400 level) undergraduate courses.
- **700-Level Research Credits:** A minimum of 4 credits at the 700-level in the student's major field is required, with at least 2 of those credits taken in the semester of the final exam and/or thesis completion.
- **Restrictions:** Courses taken for audit or on a Pass/Fail basis cannot be used on the Program of Study.

### GRADUATE COURSEWORK

The coursework for this program is structured to ensure a balanced understanding of both viticulture and enology, while allowing students to specialize in their area of interest. Students will be required to take core courses along with electives relevant to their research projects and career aspirations.

#### Required Courses (11 credits total):

1. **HORT 508 – Research Orientation and Presentation (2 credits):** Focuses on developing research proposals and communication skills through presentations, posters, and summaries. Taken within the first year.
2. **CROP\_SCI 511 – Science Writing Workshop (2 credits):** Provides instruction and support for writing research proposals or journal articles.
3. **STAT 512 – Analysis of Variance of Designed Experiments (3 credits):** Covers principles of experimental design, data analysis, and interpretation.
4. **VIT\_ENOL 590 – Seminar in Viticulture and Enology (1 credit):** Focuses on current topics in the field and career development. Conjoint with VIT\_ENOL 490.
5. **VIT\_ENOL 591 – Graduate Seminar (1 credit):** Requires students to deliver an exit seminar based on their research. Taken during the final semester.
6. **VIT\_ENOL 700 – Graduate Student Research (1-18 credits):** Students must enroll in at least 1 credit of VIT\_ENOL 700 every semester. A minimum of 4 credits is required for graduation, with at least 2 credits taken during the term of the final exam.

### RECOMMENDED COURSES

To ensure a broad understanding of both viticulture and enology, students are encouraged to take courses from the following lists, depending on their research focus. This is not a comprehensive list of possible courses. Students should consult with their thesis committee to determine which courses best support the student's educational and career goals.

#### Viticulture Focus:

- VIT\_ENOL 311 – Viticulture I (3 credits)
- VIT\_ENOL 312 – Viticulture I Lab (1 credit)
- VIT\_ENOL 414 – Viticulture II (3 credits)
- VIT\_ENOL 415 – Viticulture II Lab (1 credit)
- HORT 430 – Plant Molecular and Cellular Biology (4 credits)

- HORT 480 – Plant Genomics and Biotechnology (3 credits)
- PLP 511 – Viruses and Virus Diseases of Plants (3 credits)
- VIT\_ENOL 515 – Composition of Grapes (3 credits)

**Enology Focus:**

- VIT\_ENOL 501 – Special Topics (1-4 credits)
- VIT\_ENOL 518 – Instrumental Analysis of Grapes and Wine (2 credits)
- VIT\_ENOL 519 – Evaluation of Chromatographic and Mass Spectrometric Data (2 credits)
- VIT\_ENOL 526 – Sensometrics of Wine (2 credits)
- VIT\_ENOL 538 – Advanced Wine Chemistry (3 credits) [Conjoint with VIT\_ENOL 438]
- VIT\_ENOL 539 – Advanced Wine Chemistry Lab (1 credit) [Conjoint with VIT\_ENOL 439]
- VIT\_ENOL 582 – Advanced Microbiology and Molecular Biology of Wine (3 credits) [Conjoint with VIT\_ENOL 482]
- VIT\_ENOL 583 – Advanced Microbiology and Molecular Biology of Wine Lab (1 credit) [Conjoint with VIT\_ENOL 483]

**PLAN OF STUDY**

The MSc program is typically completed within two to three years, depending on the student's research progress. Below is a sample plan of study:

**Year 1:**

- Fall Semester:
  - HORT 508 – Research Orientation and Presentation (2 credits)
  - VIT\_ENOL 700 – Graduate Student Research (2 credit)
  - Elective or core courses in viticulture/enology (6 credits)
- Spring Semester:
  - CROP\_SCI 511 – Science Writing Workshop (2 credits)
  - STAT 512 – Analysis of Variance of Designed Experiments (3 credits)
  - VIT\_ENOL 700 – Graduate Student Research (2 credit)
  - Elective course (3 credits)

**Year 2:**

- Fall Semester:
  - VIT\_ENOL 590 – Seminar in Viticulture and Enology (1 credit)
  - VIT\_ENOL 700 – Graduate Student Research (3 credits)
  - Elective courses (6 credits)
- Spring Semester:
  - VIT\_ENOL 591 – Graduate Seminar (1 credit)
  - VIT\_ENOL 700 – Graduate Student Research (4 credits)
  - Elective courses (5 credits)

**Year 3 (if necessary):**

- Research and thesis completion
- Final exam and thesis defense

Provide descriptive information regarding the method(s) of instructional delivery (percent face-to-face, hybrid, distance, and/or competency-based).

The Master of Science (MSc) in Viticulture and Enology at Washington State University is delivered primarily in-person instruction with a few courses coming in via video conferencing. All coursework, seminars, laboratory sessions, and research components are conducted face-to-face with video conferencing options for students located at the IAREC, prioritizing a hands-on, immersive educational experience. The program's focus on experimental methods, practical applications, and direct interaction with faculty and peers is best supported by in-person delivery, providing students with the opportunity to engage fully in WSU's state-of-the-art facilities and collaborative learning environment.

#### **Assessment of Student Learning and Student Achievement\*:**

*\*For graduate programs, please contact the Graduate School before completing this section.*

Please provide a list and description of expected student learning outcomes.

#### **Graduate Learning Objectives for the MSc in Viticulture and Enology**

**1. Develop advanced critical thinking and problem-solving abilities to address complex, global challenges in the viticulture and enology industries.**

Graduate students will employ high-level analytical skills to tackle significant issues in grape and wine production, including climate change, sustainability, market fluctuations, and technological advancements, applying innovative, research-based solutions to drive industry progress.

**2. Demonstrate advanced technical proficiency in viticulture and enology, with a focus on research-driven viticulture practices, winemaking processes, and the chemical, microbiological, and sensory analysis of wines.**

Graduate students will master technical competencies through research, fieldwork, and lab experience, gaining expertise in cutting-edge methodologies to optimize grape production, improve winemaking techniques, and enhance the sensory evaluation of wines.

**3. Critically assess and innovate foundational viticultural and enological practices to promote environmental sustainability and social equity within the global wine industry.**

Graduate students will evaluate traditional and novel practices through a research lens and propose evidence-based innovations that account for environmental and economic sustainability and social equity, ensuring responsible and forward-thinking industry practices.

**4. Foster a commitment to lifelong learning by engaging in professional development and collaboration with government agencies, academic institutions, and industry leaders.**

Graduate students will advance their professional growth by participating in scholarly research, extension programs, and active collaboration with government, universities, and the private sector, ensuring continuous engagement with cutting-edge research, industry trends, and policy developments.

These objectives are designed to ensure that graduate students in the MSc in Viticulture and Enology program develop the deep expertise, technical capabilities, and leadership skills necessary to contribute meaningfully to both academic research and the evolving global viticulture and enology industries.

For undergraduate programs, provide the department's plan for assessing student learning outcomes. Describe briefly how information on student learning will be collected and incorporated into existing processes for evaluating student learning in the department. Please attach the plan and a curriculum matrix.

The assessment plan for the MSc in Viticulture and Enology at WSU focuses on ensuring that students meet the high standards required for advanced research and professional success in the field. The program's assessment process emphasizes the completion of a comprehensive research project, peer-reviewed publications, qualifying exams, and the final written thesis, all guided by the student's research and thesis committee.

Central to the program is the successful completion of a research project, which each student will design and carry out under the supervision of their faculty advisor and committee. This project will culminate in the production of a written thesis, which students must defend through an oral examination. The thesis defense will assess the student's ability to communicate research findings, demonstrate a mastery of scientific methods, and contribute original knowledge to the field of viticulture and enology.

In addition to the research project, students will be encouraged to submit their work for publication in peer-reviewed journals. The acceptance of research articles in these journals will serve as an important indicator of the quality and relevance of the student's work.

To further assess academic proficiency, students will also complete both oral and written qualifying exams. These exams will test their knowledge of viticulture, enology, and related scientific disciplines, ensuring they have the theoretical foundation needed to support their research efforts.

The student's research and thesis committee will play a crucial role in the assessment process, providing oversight and guidance throughout the student's academic journey. The committee will have the discretion to determine the specific requirements and expectations for the research project, qualifying exams, and thesis, allowing for a tailored assessment that aligns with the student's research interests and career goals.

Through these methods—research project completion, peer-reviewed publications, qualifying exams, and the written thesis—the MSc program will assess students' abilities to contribute meaningfully to the field of viticulture and enology, while preparing them for further academic pursuits or professional success in the industry. Regular feedback from students, alumni, and industry partners will ensure the program remains aligned with both academic and industry standards, allowing for continuous improvement and relevance in a dynamic field.

**Please indicate as appropriate:**

- Assessment of this program will be incorporated into the existing assessment plan for \_\_\_\_\_ . Please attach a copy of the existing plan.
- A draft assessment plan is attached.
- A curriculum matrix is attached.

## Planning:

Describe plans and include descriptions which provide evidence of:

1. The need for the new degree.

The proposed Master of Science (MSc) in Viticulture and Enology at Washington State University responds to both the increasing demand within the global wine industry and the growing challenges faced by viticulturists and enologists today. Washington State, as the second-largest wine producer in the United States, is home to over 1,050 wineries, more than 400 grape growers, and 75,000 acres of vineyards. With the wine industry generating over \$9.5 billion annually, there is a clear demand for professionals trained in advanced viticultural and enological practices. Existing undergraduate programs are insufficient to meet this growing need for specialized, research-based knowledge.

The MSc in Viticulture and Enology addresses this gap by training students in advanced research methods to tackle challenges in the grape and wine industry. These challenges include climate change, sustainability, and evolving market demands. The program will equip students with the skills needed to innovate in vineyard management, winemaking, and other critical areas. As the global wine industry continues to face significant transformations due to environmental and social pressures, there is a need for professionals who can develop solutions that ensure sustainability and competitiveness.

While Washington has strong, albeit small, undergraduate programs in viticulture and enology, it currently lacks a dedicated MSc program to train research-driven specialists. As of now, students who want an advanced Viticulture and Enology-specific degree must seek opportunities outside the state. By offering an in-state graduate program, WSU can retain top talent and meet the needs of both regional and national industry stakeholders. WSU's Ste. Michelle Wine Estates Wine Science Center and the Irrigated Agricultural Research and Extension Center (IAREC), with its advanced laboratories, research winery, and vineyards, provide an ideal environment for this world-class program.

The MSc proposal is particularly timely as Washington's wine industry faces a critical inflection point. Recent years have seen reductions in grape tonnage as the industry strategically adjusts to balance supply and demand, prioritizing quality over quantity. These changes reflect a maturing market that increasingly values innovation, sustainability, and specialized expertise. An MSc in Viticulture and Enology will address these industry shifts by producing graduates equipped to develop cutting-edge solutions, optimize resource use, and ensure the production of premium wines that align with market demands. The program's emphasis on research-driven approaches will also enable graduates to contribute to the long-term resilience and competitiveness of Washington's wine industry amid global and regional challenges.

The MSc proposal has received strong support from industry leaders who recognize the need for highly educated professionals capable of addressing the scientific, environmental, and economic challenges facing the industry. Local grape growers, wineries, and industry organizations have expressed their eagerness to hire graduates trained in advanced research and innovative technologies. This program will not only support regional industry needs but will also produce graduates capable of addressing global challenges such as climate variability, environmental sustainability, and maintaining high-quality standards in a competitive market.

WSU's current graduate students in related programs have maintained steady enrollment, and the MSc program will formalize and enhance pathways for those interested in specialized research in viticulture and enology. Additionally, the department's faculty members have a strong record of research, industry collaboration, and student mentorship, ensuring that students in the MSc program receive the academic and professional support necessary for success.

In conclusion, the MSc in Viticulture and Enology is a vital addition to WSU's academic offerings, addressing the need for highly trained professionals in Washington's evolving wine industry and the global grape and wine sectors. This degree will prepare graduates with the advanced technical skills, critical thinking, and innovative capabilities required to lead the industry through its next phase of growth and sustainability.

2. The student population to be served.

- Provide realistic justification for the projected FTE.
- How can transfer students articulate smoothly into the program and complete it with approximately the same number of total credits as students who enter WSU as freshmen?
- Please describe specific efforts planned to recruit and retain underrepresented students in this discipline.

**Student Population to be Served**

The MSc in Viticulture and Enology is designed to serve a diverse population of students, including recent graduates from related undergraduate programs, professionals in the wine industry seeking advanced education, and international students with a focus on viticulture and enology. The projected full-time equivalent (FTE) student enrollment is based on a combination of current demand in the Washington wine industry, feedback from industry partners, and the historical success of related undergraduate and graduate programs at comparable institutions. Given the steady interest in viticulture and enology education, the program expects a stable FTE of around 14-16 students per year once fully established. Additionally, the industry's demand for highly trained professionals in viticulture and enology supports this projection.

**Transfer Students and Program Articulation**

Although transfer students into a graduate program is rare, the program is willing and able to facilitate smooth articulation, particularly for students from programs with closely aligned curricula in plant sciences, enology, and viticulture. Transfer students will be provided with robust academic advising to ensure that their previous coursework aligns with the program requirements. The goal is to allow transfer students to complete the MSc program with approximately the same number of total credits as students who entered WSU from the beginning. This will be achieved by allowing course equivalency evaluations and offering flexible pathways to fill any curriculum gaps.

**Recruitment and Retention of Underrepresented Students**

The Department of Viticulture and Enology is committed to recruiting and retaining underrepresented students in this discipline, recognizing the importance of diversity in advancing the industry. Specific efforts include working closely with WSU's Office of Outreach and Education and the WSU Tri-Cities recruiting team to ensure that recruitment materials and events target underrepresented groups, including first-generation college students, students from historically underserved communities, and veterans. As of now, an increasing number of our undergraduate students are Hispanic, and we are invested in seeing more of them continue to pursue and MS in Viticulture and Enology.

The program will also participate in initiatives such as VE Connects, an existing departmental effort aimed at fostering connections between students and the wine industry, with an emphasis on providing mentorship and professional development for students from underrepresented groups. Additionally, scholarships and financial aid opportunities will be promoted to underrepresented students, reducing financial barriers to access. The department will continue to engage with professional organizations such as the American Society for Enology and Viticulture and Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) to expand networking opportunities for diverse students. Faculty will also offer ongoing mentorship and academic support to ensure the retention and success of underrepresented students within the program.

3. Procedures used in arriving at the decision to offer the new degree (e.g., consultation with advisory boards, input from industry or employers, commissioned studies, faculty task force, etc.).

The decision to offer the MSc in Viticulture and Enology at Washington State University was the result of a comprehensive and collaborative process that involved multiple stakeholders, industry leaders, faculty, as well as past and current students (undergraduate and graduate students). Several key procedures were followed to ensure that the program addresses both academic needs and the demands of the viticulture and enology industries.

The industry expressed a clear need for more advanced, research-based education to meet the growing challenges of sustainability, climate change, and global competitiveness. Local wineries, grape growers, and industry stakeholders provided input on the skills and expertise required in new graduates, reinforcing the need for a specialized graduate program in viticulture and enology. These discussions also emphasized the demand for more research-driven professionals capable of addressing real-world problems through innovation and applied science.

Surveys conducted in partnership with the Washington Wine Commission further validated the need for the program. These surveys gathered feedback from key industry stakeholders, as well as past and present students, about the evolving challenges they face and the types of expertise they require from future employees. The results showed clear support for advanced education that focuses on viticulture and enology, particularly in areas like sustainability, advanced vineyard management, and innovative winemaking techniques.

A faculty focus group was formed to develop the academic framework for the program. Faculty members were consulted to ensure that the proposed curriculum would meet academic standards and be feasible within the existing structure. The team also explored how the MSc program would complement and expand upon existing undergraduate and graduate offerings without duplicating them.

As stated above, input from WSU alumni and current students in related programs was a major factor in the decision as this population expressed a desire for advanced study opportunities within Washington State, rather than seeking them out-of-state, while current students showed interest in continuing their education in viticulture and enology at the graduate level. This feedback confirmed the demand for an MSc program and highlighted its potential to retain talented students within the state.

4. Organizational arrangements required within the institution to accommodate the new degree.

The MSc in Viticulture and Enology will be a WSU Tri-Cities-centric degree program, taking full advantage of the existing infrastructure and administrative arrangements at this campus. The Department of Viticulture and Enology at WSU Tri-Cities already has the appropriate organizational structure in place to manage this new degree, with its established faculty, research facilities, and the administrative team responsible for handling both undergraduate and graduate programs (HORT and FS students at the Wine Science Center under V&E faculty advisement).

The administrative team on the Tri-Cities campus, particularly those managing graduate studies, will oversee admissions and student support for the MSc program students. This infrastructure has proven effective for managing the undergraduate viticulture and enology program as well as graduate students coming into V&E focused study through Food Science, and it will seamlessly extend to include the new graduate degree especially considering V&E faculty will cease to bring in students through the Food Science Graduate Group.

It is important to note that the Department of Viticulture and Enology is currently operating without the full administrative support originally promised in the Notice of Intent (NOI) for the undergraduate degree. As the department expands to include this graduate program, the addition of a fiscal manager would be particularly beneficial. This role would help manage financial operations, assist with budgeting, and oversee the allocation of resources across both undergraduate and graduate programs, easing the administrative load on the current program manager and ensuring that the department has the necessary support to accommodate program growth.

5. Lay out a three-year timetable for implementation, including hiring plans, partnership contracts if needed, facilities modification, recruiting, and other elements of implementation. Provide dates for each step. **If faculty need to be hired, provide a written commitment from your funding authority of the necessary faculty lines.**

**Year 1: Initial Preparations (May 2024 - September 2024)**

**May - September 2024: Program Finalization**

- Initial program preparations, including curriculum finalization and course development.
- Coordination with WSU Tri-Cities administrative units to prepare admissions, academic advising, and student services for the MSc program.
- Review of classroom and lab schedules at the Ste. Michelle Wine Estates Wine Science Center and Irrigated Agriculture Research and Extension Center (IAREC) to ensure facilities are ready for the MSc program.

**Program Submission and Approval Process (October 2024 - December 2025)**

**October - November 2024: Submission for Final Approvals**

- Submission of the MSc program proposal to the CAHNRS Dean's office, the Provost, and the WSU Tri-Cities Chancellor for approval.
- Coordinate with university leadership to ensure timely approval processes and alignment with WSU's strategic goals.
- Prepare program materials for submission, including detailed program structure, course descriptions, and resource requirements.

**New Graduate Course Review by Faculty Senate (October 2024 - May 2025)**

**October 2024 - May 2025: Faculty Senate Review**

- Submit new graduate courses to the Faculty Senate for review and approval.
- Courses will be reviewed during this period to ensure they meet WSU academic standards and integrate effectively into the MSc program.
- Faculty and department leadership will be available to address any questions or revisions requested during the review process.

**Recruitment and Marketing (January 2025 - Ongoing)**

**January 2024 - Indefinitely: Recruitment and Outreach**

- Begin a sustained recruitment and marketing campaign to attract the first cohort of MSc students for the Fall 2025 launch.
- Partner with the Washington Wine Commission and other industry stakeholders to promote the program to current professionals in the industry and recent graduates of related undergraduate programs.
- Targeted outreach to both national and international students, utilizing WSU's networks and existing partnerships in the viticulture and enology fields.
- Use industry events, online platforms, and academic partnerships to recruit potential students, with continued marketing efforts to ensure consistent application flow for subsequent cohorts.

**Year 2: Launch of MSc Program (Fall 2026)**

**January - May 2026: Recruitment Push and Enrollment**

- Continue recruitment and outreach for Fall 2025 admissions, with a focus on direct engagement with undergraduate programs and professionals in the industry.
- Finalize the application process and begin reviewing applications, conducting interviews, and matching students with faculty advisors.
- Prepare for orientation and other onboarding activities for the incoming MSc cohort.

**July 2026: Enrollment of Inaugural MSc Cohort**

- Admit the first cohort of MSc in Viticulture and Enology students for the Fall 2025 semester.
- Conduct student orientations and program inductions, including research facility tours and faculty introductions.

**August 2026: Start of MSc in Viticulture and Enology**

- The first cohort of MSc students officially begins classes.

- Faculty who previously advised graduate students through Food Science will transition to advising students through the MSc program in Viticulture and Enology, fully integrating into the new program's structure.

### **Year 3: Program Stabilization and Expansion (2027)**

#### **January - May 2027: Review and Adjustments**

- Conduct an internal review of the first semester's performance, gathering feedback from students, faculty, and industry partners.
- Assess curriculum, research opportunities, and student support systems, making any necessary adjustments to improve the program experience for future cohorts.

#### **July - August 2027: Recruitment for Second MSc Cohort**

- Continue recruitment efforts, using early successes and student testimonials to attract applicants for the second cohort.
- Refine marketing materials based on feedback from the first cohort and industry partners to improve outreach efforts.

#### **August 2027: Begin Second Year of MSc Program**

- Welcome the second cohort of students to the MSc in Viticulture and Enology program.
- Continue refining the program based on ongoing feedback, ensuring that the curriculum remains aligned with both academic standards and industry needs.

### **Facilities and Staffing**

There are no required faculty hires to achieve the programmatic goals of the MSc in Viticulture and Enology as written. Faculty who have historically advised students through the Food Science program will transition to advising students through the MSc in Viticulture and Enology. The financial statement demonstrates that the existing faculty members in the Department of Viticulture and Enology are fully capable of teaching the required VE courses for the MSc program.

The facilities at the Ste. Michelle Wine Estates Wine Science Center and IAREC are already fully equipped to support the MSc program. Any minor adjustments to lab or classroom spaces will be handled during the preparation phase in 2024. No major facilities modifications are required.

### **Budget:**

Attach the Financial Worksheet with five-year FTE, revenue and expenditure projections. Fully account for costs such as staff support, training, library, facilities and so on.

Please describe the funding picture narratively, including funding sources, department, college and/or campus commitments, investments already made, one-time costs, facilities costs (labs, classrooms, offices, telecom etc.), and library costs.

The funding picture for the MSc in Viticulture and Enology at WSU Tri-Cities reflects a well-planned and resource-efficient approach that leverages existing infrastructure and faculty resources, with minimal additional costs in the immediate years of program launch.

In the initial years of the MSc program, graduate student numbers are expected to remain consistent with the current levels, as Viticulture and Enology (V&E) faculty who previously advised students through the Horticulture and Food Science Graduate Degree Programs will now bring in students through the MSc in Viticulture and Enology. This transition does not require new faculty hires or additional resources, as the existing V&E faculty already have the capacity to mentor graduate students and meet programmatic goals. Over time, we anticipate this program will attract more demand than the Food Science pathway, as it provides a more focused and specialized degree for students interested in viticulture and enology.

The facilities at the Ste. Michelle Wine Estates Wine Science Center and the Irrigated Agriculture Research and Extension Center (IAREC) are already fully equipped to support the new MSc program. The labs, classrooms, and research facilities have the infrastructure in place to accommodate both current and future student numbers. As

detailed in the financial paperwork, there are no anticipated increases in facilities costs since the program will utilize existing spaces, and the availability of classrooms at the Wine Science Center is sufficient to handle the additional courses required by the MSc program. No new construction or modifications to the current facilities are required.

Based on an analysis of WTU (working teaching units) of existing faculty in the Department of Viticulture and Enology, the team has the necessary bandwidth to teach the newly developed V&E courses under their current contract splits. The faculty members who have historically advised students through the Food Science pathway will now focus on MSc students in Viticulture and Enology, and the transition is seamless. Viticulture focused faculty will have the option to bring students in through this new degree path as well as continue to utilize the Horticulture Graduate Group as an option. As demonstrated in the financial plan, the department has structured faculty time and resources to ensure that teaching and advising loads are well-managed without the need for additional hires in the immediate future. This existing faculty capacity allows the program to launch without added strain on teaching resources.

The library infrastructure at WSU Tri-Cities, including the resources at the Wine Science Center, is fully adequate to support the MSc program. Most relevant academic journals and periodicals are already available online, and the collection of disciplinary books and resources necessary for the program are in place. There are no immediate additional costs anticipated for library resources, as the current setup provides students and faculty with comprehensive access to viticulture and enology materials. Should future needs arise as the program expands, the department will reassess and address library resource allocations accordingly.

The Department of Viticulture and Enology has already made significant investments in faculty development and has the necessary infrastructure for the program. No one-time costs for new facilities or equipment are required, and the program is positioned to grow without placing additional financial burdens on the department or the college. While the immediate years will see a transition of students coming in through the Food Science program to the MSc in Viticulture and Enology, over time, we anticipate seeing an increased demand. As this growth occurs, the department is prepared to explore additional funding opportunities, including industry partnerships, additional research grants, and scholarships, to ensure the program's long-term financial sustainability.

### **Student Services:**

Describe the capacity of student support services to accommodate the new degree. Include a description of admissions, financial aid, advising, library, tutoring, and other services specific to this request.

The introduction of the MSc in Viticulture and Enology at Washington State University's Tri-Cities campus is supported by a robust student support system that is well-equipped to accommodate the needs of the new degree program. Here is a breakdown of how each service will support the MSc students:

#### **Admissions**

The WSU Tri-Cities admissions office is experienced in handling applications for both domestic and international students, ensuring a smooth admissions process for the MSc program. The office will coordinate with the Department of Viticulture and Enology to tailor admissions requirements and processes specific to the MSc, including prerequisites, application materials, and deadlines.

#### **Financial Aid**

The financial aid office at WSU Tri-Cities will assist faculty with grants to provide comprehensive support to MSc students, helping them navigate the system. This includes information on scholarships, grants, and assistantships specifically available to Viticulture and Enology students. The office will work closely with the department to ensure that prospective and current students are aware of industry-sponsored scholarships and funding opportunities, aiming to alleviate financial barriers to enrollment and retention.

#### **Academic Advising**

Academic advising for the MSc in Viticulture and Enology will be led by the faculty committee chairs of each student's graduate committee. These faculty members will provide tailored guidance, ensuring students select

appropriate courses and research projects that align with their academic goals and career aspirations. The faculty committee chairs will also help students navigate their research journey, offering support from the initial proposal stages through to thesis completion, and ensuring that students are on track to meet all degree requirements. This faculty-led advising structure ensures that students receive personalized mentorship from experts in their field.

### **Library Services**

The WSU Tri-Cities library, along with the Wine Science Center's resources, will support MSc students with a comprehensive range of services. The library will provide access to viticulture and enology literature, scientific journals, and databases necessary for advanced research in the field. Additionally, library staff will be available to assist with research queries, literature reviews, and access to interlibrary loan services to ensure students can obtain all necessary academic materials.

### **Tutoring and Academic Support**

The WSU Tri-Cities campus offers tutoring services and academic support through its student success center, which will be available to MSc students. These services include writing support, statistics help, and other academic resources that are particularly useful for graduate students involved in complex research projects. Workshops and seminars on research skills, writing, and data analysis will also be organized specifically for the needs of MSc students from within the department.

### **Other Services**

The campus provides additional support services that are critical for graduate student success, including career counseling, mental health services, and networking opportunities with industry professionals.

## **Describe the implications of the new degree for services to the rest of the student body.**

The introduction of the MSc in Viticulture and Enology at WSU Tri-Cities will have several positive implications for the broader student body and campus community. This new degree will raise the profile of graduate education on the campus, enhance diversity, and create expanded opportunities for academic engagement and collaboration.

### **Raising the Graduate Profile of the Campus**

The addition of a research-based MSc program will significantly enhance the visibility of graduate education at WSU Tri-Cities. By attracting graduate students from diverse academic and professional backgrounds, both domestically and internationally, the program will elevate the campus's reputation as a hub for advanced study and research in viticulture and enology. As the MSc students engage in cutting-edge research, their contributions will enrich the academic environment, increasing opportunities for undergraduates to learn from graduate-level projects, research seminars, and industry collaborations. The presence of a strong graduate cohort will set a higher academic standard, fostering a culture of research excellence across the campus.

### **Bringing Diversity of Personnel and Perspectives**

The MSc in Viticulture and Enology will attract a diverse group of students, faculty, and visiting researchers, introducing new perspectives to the WSU Tri-Cities campus. Students from various cultural, educational, and professional backgrounds will contribute to a more dynamic and inclusive campus environment. This diversity will not only enrich classroom discussions but also foster new ideas and innovations in research that reflect a broader range of global viticulture and enology practices. Additionally, industry partnerships fostered through the program will introduce new professionals and experts to the campus, further diversifying the academic and industry interactions available to students and faculty alike.

### **Creating Opportunities for Engagement**

The presence of a graduate program focused on viticulture and enology will create new opportunities for engagement for the entire student body. Undergraduate students will have more opportunities to engage in collaborative research projects, mentorship programs, and internships facilitated by the graduate program. The program will also encourage more frequent campus events, such as research symposia, guest lectures from industry leaders, and networking opportunities, which will benefit both undergraduate and graduate students. These events

will stimulate cross-disciplinary engagement, inviting students from other programs to participate and learn from developments in viticulture and enology.

### **Physical Facilities and Equipment:**

Outline the provision(s) made for physical facilities and equipment at the proposed location that will support the program and its projected growth. Include videoconferencing and other technologies that support course delivery, as well as classrooms, labs, and office space.

The Master of Science (MSc) in Viticulture and Enology program at Washington State University is supported by two premier facilities: the Ste. Michelle Wine Estates Wine Science Center (WSC) at WSU Tri-Cities and the Irrigated Agriculture Research and Extension Center (IAREC) in Prosser. These locations provide the necessary infrastructure and resources to ensure that students receive comprehensive education and training in viticulture and enology, with both facilities offering world-class environments for research, learning, and collaboration.

At the WSC, students have access to modern, technology-enhanced classrooms that are fully equipped for graduate-level instruction. These spaces include audiovisual systems, projectors, smartboards, and videoconferencing capabilities, which foster interaction with faculty, industry experts, and peers across locations. The advanced technological setup ensures that students benefit from a collaborative, engaging learning environment. The WSC also features state-of-the-art laboratories equipped with cutting-edge tools, such as gas chromatography-mass spectrometry (GC-MS) and high-performance liquid chromatography (HPLC), essential for conducting sophisticated chemical, microbiological, and sensory analysis of grapes and wines. These laboratories, designed to support viticulture and enology research, enable students to apply theoretical knowledge through hands-on research activities.

The WSC is also home to a fully operational research winery, where students gain hands-on experience in small-scale wine production. This facility allows students to apply their research findings in winemaking experiments, testing new techniques and innovations in controlled settings. Additionally, the adjacent vineyards at the WSC provide a valuable resource for field experiments, giving students the opportunity to conduct real-world research on grape cultivation and vineyard management.

Complementing the WSC's resources is the IAREC facility in Prosser, which offers extensive vineyards and additional laboratory space dedicated to viticulture research. The IAREC vineyards provide students with access to a larger, production-scale environment for conducting field studies on grapevine physiology, pest and disease control, water use efficiency, and sustainable vineyard practices. Faculty based at IAREC specialize in advanced viticulture techniques and provide guidance to students conducting research in vineyard management and sustainability. The combined resources of both the WSC and IAREC ensure that students gain a well-rounded education that integrates both viticulture and enology disciplines.

Faculty members across both facilities work closely with students, offering mentorship and support in both research and career development. At IAREC, faculty focus on viticulture research, while faculty at the WSC emphasize innovations in winemaking and grape chemistry. This cross-disciplinary collaboration ensures that students receive a holistic education that prepares them for leadership roles in the wine industry.

To further enhance the learning experience, both WSC and IAREC are equipped with robust videoconferencing technology. This enables remote participation in seminars, guest lectures, and industry collaborations, providing students with opportunities to engage with global experts in viticulture and enology. The integration of remote learning technologies ensures that students can access high-quality educational content and collaborate with professionals regardless of their location.

Graduate students also have access to dedicated office spaces at both WSC and IAREC, where they can focus on their research and studies. These office spaces are equipped with high-speed internet, computational tools, and research software, allowing students to analyze data, collaborate on projects, and complete academic work efficiently.

Both the WSC and IAREC are prepared to support the growth of the MSc program. The facilities have the capacity to accommodate increasing enrollment and expanding research activities.

### Library and Information Resources:

Using the Library Analysis form, describe the availability and adequacy of library and information resources for this degree, degree level, and location. Note plans to address gaps.

The availability and adequacy of library and information resources for the MSc in Viticulture and Enology at WSU are well-established and sufficient to meet the program's needs. The existing library infrastructure at the WSU Tri-Cities campus, particularly at the Wine Science Center, provides comprehensive access to key disciplinary books and resources essential for graduate-level research in viticulture and enology.

The Wine Science Center already houses a robust collection of foundational texts in viticulture and enology, ensuring that students have access to the core literature necessary for their studies. During the transition of the Viticulture and Enology program to department status, the university planned for the transfer and acquisition of new books for the WSU Tri-Cities library. These resources are in place and adequately support the program's current and projected needs, with minimal additional impact expected on existing collections.

The current digital infrastructure, which includes access to academic journals, industry publications, and specialized databases, is fully capable of supporting the MSc program. The combination of physical library resources and strong online access ensures that students and faculty can easily access the necessary materials for their research and coursework. The digital platforms in place provide seamless access to critical publications and research tools that are fundamental for advanced study in viticulture and enology.

The WSU Tri-Cities library staff is experienced in supporting graduate-level research, particularly in scientific fields, and offers essential services such as interlibrary loan, research assistance, and database access. These services are expected to fully meet the needs of the MSc students. Additionally, the library staff is committed to ongoing professional development, ensuring that they remain well-equipped to assist students and faculty in navigating the advanced research resources required for the program.

The MSc in Viticulture and Enology will contribute to the sustainability of existing serials and potentially enhance the funding for additional journals and databases as the program expands. While the current resources are adequate, the growth of the program may help secure further funding, which will enhance access to critical resources necessary for both research and teaching.

### Faculty:

- List the educational and professional qualifications of the faculty relative to their individual teaching assignments.
- List the anticipated sources or plans to secure qualified faculty and staff.

The faculty members involved in the MSc in Viticulture and Enology program at Washington State University are highly qualified, with extensive educational backgrounds and professional expertise relevant to their teaching and research assignments. Below is a summary of the qualifications of faculty relative to their individual roles:

**Jean C. Dodson Peterson, PhD** – Founding Department Chair, Associate Professor of Viticulture  
**SPECIALIZATION** | Effective College Instruction, Viticulture, Plant Physiology  
**QUALIFICATIONS** | PhD in Horticulture and Agronomy, extensive research in grapevine physiology, vineyard management techniques, and teaching case studies. Teaching experience includes advanced viticulture courses, senior student projects, advanced independent study, and thesis supervision.

**Michelle Moyer, PhD** – Professor of Viticulture

**SPECIALIZATION** | Plant Pathology, Viticulture, Integrated Pest Management (IPM)

**QUALIFICATIONS** | PhD in Plant Pathology with expertise in disease management in vineyards, pest control, and sustainable vineyard practices. Dr. Moyer teaches extension programming related to vineyard health, pest and disease management, and sustainable viticulture practices while mentoring graduate students on viticulture research projects.

**James Harbertson, PhD** – Associate Professor of Enology and Wine Sensory

**SPECIALIZATION** | Enology, Wine Chemistry, Phenolics, Sensory

**QUALIFICATIONS** | PhD in Agricultural and Environmental Chemistry, internationally recognized for his research in wine chemistry, particularly in phenolic compounds and tannin management. Teaching experience includes wine chemistry, winemaking processes, and chemical composition of wine.

**Tom Collins, PhD** – Associate Professor of Wine Chemistry

**SPECIALIZATION** | Enology, Analytical Chemistry, Wine Flavor Chemistry

**QUALIFICATIONS** | PhD in Agricultural and Environmental Chemistry, with a focus on wine flavor chemistry, aroma compounds, and advanced analytical methods for wine quality assessment. Dr. Collins teaches courses in instrumental analysis of wine, advanced enology techniques, and chromatography.

**Bhaskar Bondada, PhD** – Associate Professor of Viticulture

**SPECIALIZATION** | Grape Physiology, Vine Structure and Function

**QUALIFICATIONS** | PhD in Crop Physiology, specializing in grapevine physiology, vine structure and function, and environmental factors impacting grape production. Teaching experience includes courses on grapevine biology, vineyard management, and plant physiology, with a focus on sustainable vineyard practices.

**Markus Keller, PhD** – Professor of Viticulture

**SPECIALIZATION** | Grape Physiology, Vine Water Relations, Sustainable Viticulture

**QUALIFICATIONS** | PhD in Natural Sciences, expert in grapevine physiology, water relations, and vineyard management techniques. Dr. Keller has extensive experience teaching courses in grapevine biology, vineyard water management, and sustainable viticulture, while mentoring students on advanced viticulture research.

**Thomas Henick-Kling, PhD** – Professor of Wine Microbiology

**SPECIALIZATION** | Enology, Wine Microbiology, Fermentation Science

**QUALIFICATIONS** | PhD in Biochemistry and Microbial Physiology with a focus on fermentation science and wine microbiology. Dr. Henick-Kling is internationally recognized for his contributions to winemaking research, with extensive industry experience. He teaches courses on winemaking techniques, wine microbiology, and fermentation dynamics while supervising student research in enology and wine science.

This proposal does not create an immediate need for additional faculty to teach in the MSc in Viticulture and Enology program. The existing faculty within the Department of Viticulture and Enology are highly qualified and well-positioned to cover the core courses, research mentorship, and advising for graduate students. The current team of faculty possesses the necessary expertise in viticulture, enology, wine chemistry, microbiology, plant physiology, and vineyard management to meet the program's needs.

As the program grows, the department will continue to assess its resources and may consider additional faculty hires in specialized areas as needed, based on program expansion and research opportunities. However, the initial launch of the MSc program is fully supported by the current faculty, ensuring that students will receive high-quality education and research support from established leaders in the field.

**Impact on Other Locations/Programs:**

Briefly describe any impacts on other WSU programs and locations, and how you came to these conclusions (who was consulted?). If there are potential adverse impacts, describe how these will be addressed. Consider such things as: reallocation of faculty time, reallocation of AOI courses, impact of blended courses, internal competition, “cannibalization” of other programs, curricular effects for other degrees, effects on recruitment markets for other campuses. Indicate how such problems will be addressed for each campus or department affected.

This proposal for the MSc in Viticulture and Enology is not expected to have adverse impacts on other WSU programs or locations. Consultations were conducted with relevant departments, including the Department of Horticulture and the Department of Crop Science, as both have courses listed in the Core Course requirements for the MSc program. Both departments were supportive of the proposal and confirmed that they are willing to allow Viticulture and Enology graduate students to enroll in these core courses. There is no need for reallocation of faculty time from these departments, and they will continue to offer these courses as part of their regular curriculum.

The program is designed to fill a unique educational and research niche focused specifically on viticulture and enology, and as such, it is not expected to create internal competition or affect enrollment in other graduate programs. The curriculum and research focus of the MSc in Viticulture and Enology are distinct from other programs, ensuring minimal overlap or "cannibalization" of existing WSU degrees.

A key issue involves the Department of Food Science, which previously allowed Viticulture and Enology faculty to chair graduate committees for students enrolled in the Food Science graduate program. However, following the transition of Viticulture and Enology to its own department, the Food Science Department no longer permits these faculty members to chair graduate committees. As a result, the MSc in Viticulture and Enology provides a critical, direct pathway for VE faculty to continue advising and mentoring graduate students, addressing a gap created by the closure of the Food Science pathway.

**Sustainability:**

What are the plans for continuing the program past 5 years if the goals for enrollment are not met, or other circumstances prevent the execution of the plan described here?

If the enrollment goals for the MSc in Viticulture and Enology are not met within the first five years, or if unforeseen circumstances hinder the full execution of the proposed plan, the department has several strategies to ensure the program's continuation and success.

The Department of Viticulture and Enology will regularly evaluate the program's performance by monitoring enrollment trends, student feedback, and industry demand. If enrollment targets are not achieved, the department will adjust its curriculum and recruitment strategies accordingly. This may involve refining the program's focus to better align with emerging industry needs, offering more specialized tracks or research opportunities to attract students.

Should enrollment fall below expectations, the department will intensify recruitment efforts, which could include expanding outreach to international students, forging additional industry partnerships to provide scholarships and assistantships, and enhancing marketing campaigns to highlight the program's unique strengths. The department will also leverage WSU's existing networks within the viticulture and enology industries to appeal to professionals seeking advanced education to further their careers.

As students are primarily supported through grant funding, if grant funds are down, this too could impact student numbers. The Department is committed to supporting faculty secure grant funding and pursuing new avenues for project support such that this is not a limiting factor for student admission to the degree path.

Given the strong support from the Washington wine industry, the department will strengthen its ties with industry partners if enrollment targets are not met. By offering more industry-driven research projects, internships, and career development opportunities, the program can further increase its appeal to prospective students and provide clear pathways to employment after graduation.

In the event of under-enrollment, the department will seek additional funding sources to ensure the program's sustainability. This may include applying for grants or expanding industry partnerships to secure research funding. WSU's commitment to maintaining educational offerings that meet industry demand will also provide a stable foundation for the program's ongoing viability.

If, after these efforts, enrollment still does not reach sustainable levels, the department will reassess the program's structure. This could involve restructuring or realigning the program to focus on a more niche area of study. If necessary, the program may be gradually phased out. In such cases, WSU will ensure that students already enrolled are supported through to graduation, and faculty resources will be reallocated to other growth areas within the university.

By implementing these strategies, the Department of Viticulture and Enology will remain flexible and responsive to changing circumstances, ensuring the long-term success and sustainability of the MSc in Viticulture and Enology program.

**External Reviewer Contact Information:**

If this program is new to the Washington State University system, please provide the names and contact information for 2-3 external experts from similar institutions *who could* be contacted to provide reviews of this program.

Name	Contact Information (email and phone)
<b>Dr. Linda Bisson, PhD, Professor and Geneticist in Viticulture and Enology (Enology Focus)</b>	<b>(530) 752 3835</b> <b>lfbisson@ucdavis.edu</b>
<b>Dr. Andrew Walker, PhD, Professor and Geneticist in</b>	<b>(530) 752 0902</b> <b>awalker@ucdavis.edu</b>

<b>Viticulture and Enology (Viticulture Focus)</b>	
<b>Dr. Kerry Wilkinson, PhD, Professor of Oenology</b>	<b>001 61 1 83137360 Kerry.wilkinson@adelaide.edu.au</b>

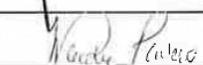
**Attachments:**

- Financial Worksheet
- Demand Analysis
- Library Analysis
- Four-Year Degree Plan (undergraduate); curriculum overview (graduate and professional)
- Curriculum Map (undergraduate)
- Assessment Plan
- Letters of financial commitment
- Contracts or MOUs if applicable

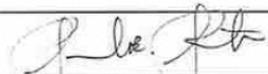
**Submit completed form as a Word document to the Provost's Office at [provost.deg.changes@wsu.edu](mailto:provost.deg.changes@wsu.edu)**

**SIGNATURES:** The names typed below certify that the relevant academic and campus officials have reviewed and approved this proposal:

Chair or Director Signature:		Date:	12/19/2024
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Dean Signature:		Date:	12/19/2024
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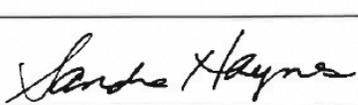
*Signatures are required from all Chancellors (or delegates). A signature denotes endorsement if the degree will be offered and/or impact the respective campus. A signature will also denote receipt of notification if the degree is not being offered and/or will impact the respective campus. If needed, a signature abstention box is provided immediately below.*

Everett Chancellor Signature:		Date:	1-6-25
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Global Chancellor Signature:	David Cillay	Date:	1/10/2025
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Pullman Chancellor Signature:	David Cillay	Date:	1/10/2025
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Spokane Chancellor Signature:		Date:	1/13/2025
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Tri-Cities Chancellor Signature:		Date:	12.19.24
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Vancouver Chancellor Signature:		Date:	1/14/2024
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Comments regarding abstention of signature(s)

**Submit completed form as a Word document to the Provost's Office at [provost.deg.changes@wsu.edu](mailto:provost.deg.changes@wsu.edu)**

Provost's Office Signature:		Date:	
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For Registrar's Office Use Only:			
Current CIP Code:		New CIP Code:	
		Date:	