

# The University of Montana Western-Glass Program

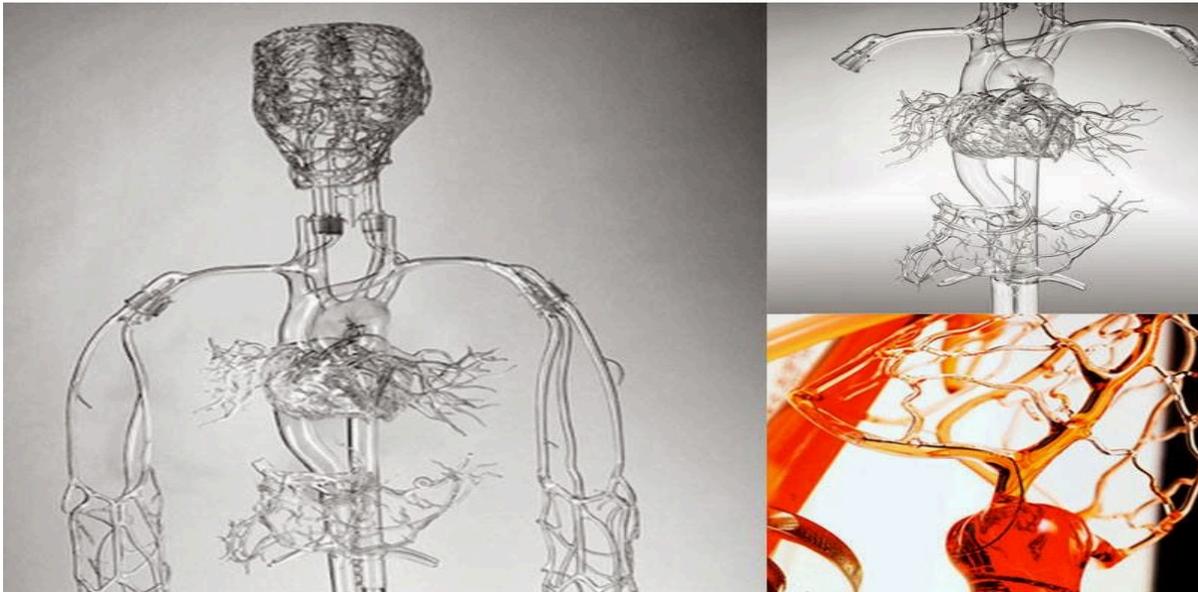
## Defining Scientific Glassblowing and Studies in Glass



For the novice who hears the term Scientific Glassblowing or Studies in Glass, one's mind automatically goes to the basic beaker in the chemistry lab, or the pretty souvenir collected from the gift shop on a trip to the coast. But Scientific Glassblowing and other methods of glasswork such as torch-work, fusing, off-hand-furnace-worked, casting, cold-working, etc. represents over \$4.6 *billion* in annual wages in the US in the glass industry, per the 2015 data provided by the Bureau of Labor Statistics. Montana specific combined annual wages in this field have ranged from \$80,000-\$1,023,000 between 2003 and 2014 per the Bureau of Labor Statistics. These data encompass careers in the glass arts, and glass working methods which interface with STEM careers in electrical engineering, photonics, environmental science, mining, combustion and medical research, photolysis, petrochemical, academia, etc.



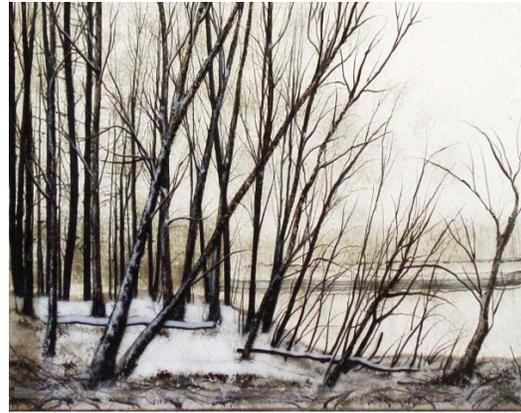
### Scientific Glassblowing



Scientific Glassblowing: Gary Farlow – anatomical models used to practice and test medical processes.



**Torch Working: Paul Stankard**



**Fusing: Miriam di Fiore**

## Scenario Future Map for Glass Program

The following page provides an abbreviated scenario future map for the glass program based on analyzed data which informs the preferred future of the program. The goal of this abbreviated future map is to outline a scenario(s) that leads to the stated preferred future, including goals, strategies for success, yellow flags or warnings to consider, and other potential futures that could develop from opportunities afforded through this program.

**Statement of Preferred Future:** The University of Montana Western, as one of the few bachelor degree granting glass programs, and *one of only two* post-secondary institutions in the United States to offer a degree specialization in scientific glassblowing, provides premier graduates to STEM as research assistants, and to the art world overall. Through existing recruitment and retention strategies, and interaction with faculty and specialists in the field of glass, Western moves students from recruitment, to retention and persistence, to graduation, eventually becoming sought after employees based on their skills developed in glass, and the level of degree earned at Western: certificate, associate, minor, and bachelor of arts.

### Reading the Future Map

The map moves from left to right and highlights how a student at Western progresses through the process of admissions, persistence, graduation, and career.

*Blue Boxes:* Goals of the program in the represented student stage

*Yellow Boxes:* Yellow Flags or concerns that may interrupt the flow of the program

*Green Boxes:* Potential resolutions to the yellow flags

*Orange Boxes:* Potential futures that could develop at each stage

*Text Boxes concluding each section:* Data sources supporting the scenario

# Glass Program Future Map

## Admissions/Recruitment

Current recruitment plan and strategies with additional support from glass faculty align with these goals.

**Year One Goal:**  
Minimally 6 Newly Enrolled.  
Max Ten

**Year Two Goal:**  
Add an additional five to six newly enrolled

**Year Three Goal:**  
Add an additional five to six newly enrolled

**Year Four Goal:**  
Add an additional seven to eight newly enrolled

**Yellow Flag:** Will this program pull from recruits interested in Visual Arts instead of establishing its own recruitment base?

**Not Likely:** While there could be some students that choose glass blowing over visual arts, recruitment data support that there are enough students interested in the arts and STEM research integration to support recruitment for the program. In addition, program is unique to the art and science world particularly in the North Western United States. Based on analysis, recruitment goals are realistic.

### Potential Futures:

Nature of Program will also appeal to out of state students in the surrounding region.

A solid reputation based on graduates will develop a recruitment base for the program beyond standard recruitment strategies.

Supporting Data: Data from CollegeBoard Purchased Names-Montana graduating seniors interested in art majors; DWH 3 and 5 year averages of newly enrolled students declaring an Art degree; Glass Program in America Google Map: Salem Community College, the only degree offering academic institution in scientific glassblowing has an ongoing wait list- currently 60 on SCC waitlist.

## Retention/Persistence

With current faculty and program support structures, recruitment and retention strategies, the glass program could have up to 15-20 full time students annually.

**Year One Enrollment:**  
11-15 students (6-10 new students/ 5 students changing major)

**Year Two Enrollment:**  
16-20 students

**Year Three Enrollment:**  
22-25 students

**Year Four Enrollment:**  
Maintain at least 25 students

**Fiscal Considerations** based on AY17 Cost of Tuition with 5% adjustment \*

Year One Adjusted Gross Tuition: \$49485

Year Two Adjusted Gross Tuition: \$82826

Year Three Adjusted Gross Tuition: \$124180

Year Four Adjusted Gross Tuition: \$138403

*Fine Arts has additional funding to facilitate ongoing program and equipment maintenance through Emerick and Mary Baker Trust.*

Supporting Data: UMW Retention, Course Enrollment, Residency Report and Graduation Reports. Tuition estimation is based on current AY17 Tuition Costs; calculation does not assume tuition increases for formula purposes. \*A five percent adjustment to gross tuition has been applied to the calculation to adjust for standard tuition discounting opportunities.

**Yellow Flag:** What if recruitment stalls and there is not enough students to fill the courses

**Solution:** Recruitment Strategy- If course enrollment appears low for the year, additional strategic recruitment could be implemented to support the certificate degree with professionals in the field seeking specialization (i.e., STEM research assistants; artists).

However, this is not expected to be an issue, as glass course enrollment has remained consistently full at Western since the onset of its course offerings in glass in 1976.

**Potential Futures:** Stackable Degrees offered - Certificate, Associate, minor, and Bachelor - will lend itself to support Performance Based Funding; further co-curricular opportunities with STEM Degrees; As reputation grows potential for outreach to Artists/ Researchers who specialize in the field.

## Graduation/Beyond

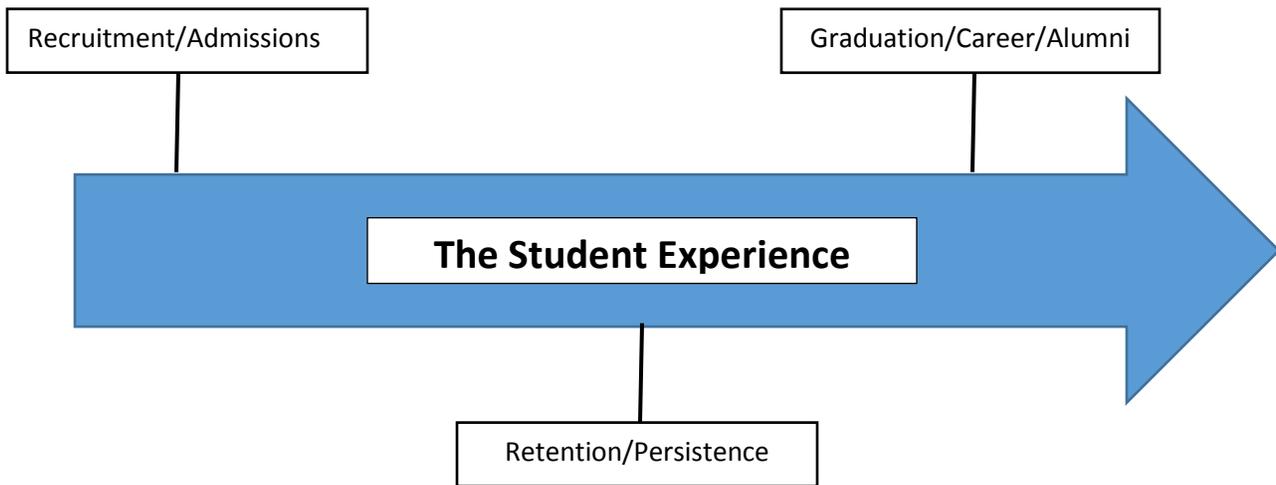
**Graduates:** Through stackable degrees this program should anticipate 10-15 certificate and/or associate graduates minimally by the 2<sup>nd</sup> or 3<sup>rd</sup> year. In addition, 10-12 Bachelor degrees (depending on transfer population) will be posting as early as the third and fourth year.

**Job Market:** Research Lab Work Scientific Glass; Glass and Electronic s; Glass Blower Chemistry /Biochemistry; Entrepreneur

**Potential Futures:** Summer Institute; Community Art Festivals; Internship Opportunities Expanded

Data Source: ASGS Employment Page; Bureau of Labor Statistics

Beyond the previous page future map, the following outlines other plans/details supporting the student experience and Montana Western campus through the development of the Glass program. These bullets elaborate on some of the previous notations but are provided in the following format for ease of notation and are also available on the main future map located at Western.



## Recruitment and Admissions

- Current Recruitment Strategies: Faculty in Fine Arts and particularly in the glass program have already been in discussion with the admissions office regarding how they can support the recruitment process of this program and draft development will begin upon approval of program to prepare common supplemental recruitment supports such as: Letters from the faculty to students interested in the program; rack cards; and recommended degree completion maps for the certificate, associate, and bachelor's degrees in glass.
- Potential Future Recruitment Strategy: Re-evaluate scholarship allocation from the Emerick Fund and use this approach as leverage to attract sought after student population for program. Current discussions are subject to change but include scholarships such as: one at \$7,500; four at \$2,000; and 10 at \$500.
- Potential Future Recruitment Strategy: Consider adding one time scholarship for a student who a program or faculty recruits outside of the normal admissions procedures to enroll at Montana Western in their specific program.

## Retention/Persistence

- \*Five % adjustment to gross tuition estimates is applied to formula in map to allow for scholarship and other standard discounting of tuition.
- Current and Future Fiscal Stability: The required equipment is already available for this program in the Emerick Art Studio. No additional funding is needed to start this program and the Emerick and Mary Baker Trust Fund will continue to provide funding to replace and upgrade equipment in future years.
- Potential Future Retention Strategy: Offering International professional development travel for internships; Visiting artist seminars and one on one training opportunities.
- Potential Future Retention Strategy and Community Outreach: As the program's reputation grows, there is a potential to develop an Annual Art Festival where students and professionals can highlight their work attracting attention to the art and STEM programs of the institution as well as the Dillon, Montana community overall.

## Graduation/Career/Alumni

- Potential Future Outreach Strategy: In year two or three of the program, begin the summer institute surrounding fine arts to support not just students, but hobbyist and professionals in the STEM and art world.
- Potential Future: Development of a Mobile Furnace that travels to events and seminars demonstrating the skills invested in Scientific Glass and studies in glass.