

Graduated Bowman Probes

Date: February 6 to February 13, 2026

Client: Dr. James Law

Advisor: Professor Monica Ohnsorg

Team:

Neel Srinivasan nsrinivasan8@wisc.edu (Team Leader/BPAG)

Caden Robinson carobinson5@wisc.edu (BSAC)

Caleb White cwhite@wisc.edu (BWIG)

Cole Miller ctmiller8@wisc.edu (Communicator)

Problem Statement

Bowman probes are the standard instrument used in interrogation of the nasolacrimal (tear duct) system in Ophthalmology. They are available in various sizes and provide tactile feedback to the surgeon when probing the canalicular/nasolacrimal system, allowing them to assess for strictures, discontinuities, obstruction, or other abnormality within its lumen. Probing is typically performed prior to the passage of implants such as nasolacrimal stents (eg. Crawford, Lacriflow, Nunchucku, Monoka), to confirm patency of the nasolacrimal system. Available probes on the market do not have any markings on them which may allow the surgeon to make measurements to points within the canalicular/nasolacrimal lumen (eg. a stricture at 30 mm distal to the punctum), which can be helpful in correlating with imaging findings, or for accurate clinical documentation and therefore inform management of nasolacrimal pathologies. We propose the development of such a stent with inscribed bands corresponding to millimeter markings which may be referenced during canalicular or nasolacrimal probing.

Brief Status Update

This week the team continued its research into different routes to create graduated bowman probes. The team also worked together to create the design matrix in which we can better evaluate different designs and ultimately choose one that we wish to pursue. The team is also planning out necessary action items to work on the preliminary presentation and report. The team will update Professor Ohnsorg on this week's progress during the meeting on Friday, February 13th.

Summary of Weekly Team Member Design Accomplishments

- Team:
 - Collectively worked on and completed design matrix
 - Continued research into methods of line markings for design matrix and general background knowledge

- Neel Srinivasan:
 - Worked with team on design matrix evaluation
 - Researched potential of electroplating/changing color of stainless steel alloy to accomplish graduating the probe

- Caden Robinson:
 - Met with team to discuss different prototype options and create design matrix
 - Continued to research potential options for creating markers for measurement on the probes

- Caleb White:
 - Researched prototyping and design options for the bowman probe design matrix, specifically electroplating and the potential of electroplating the graduated markings on the probe.
 - Met with the team to complete the design matrix, having a thorough discussion of design criteria and design ratings.

- Cole Miller:
 - Met with team to work on design matrix
 - Continued research on design options for design matrix

Weekly/Ongoing Difficulties

Finding appropriate ways to achieve precise and practical graduation.

Upcoming Team and Individual Goals

- Team:
 - Create slides and practice preliminary presentation
 - Assign sections and complete preliminary report
 - Begin research on necessary information based on chosen design from matrix
 - Reach out to Dr. Law to inquire about probe ordering

- Neel Srinivasan:
 - Research necessary components for chosen design from matrix
 - Practice and give preliminary presentation with the team
 - Write sections of preliminary report

- Caden Robinson:
 - Begin preparing the preliminary presentation
 - Prepare the preliminary report
 - Continue to develop prototypes and develop an action plan for fabrication

- Caleb White:
 - With the decided design, do more tailored research to the specifics of the design.
 - Depending on the design, potentially reach out to facilities and faculty on campus that could help with our endeavors.
 - Contribute to the team preliminary report.

- Cole Miller:
 - Perform additional research as needed for preliminary report
 - Work on preliminary report and practice with team
 - Continue to plan prototypes of probe

Project Timeline

Project Goal	Deadline	Team Assigned	Progress	Completed
Meet with client	2/2	All	✓	✓
Product Design Specification	2/5	All	✓	✓
Preliminary Presentations	2/20	All	X	X
Preliminary Deliverables	2/25	All	X	X
Show and Tell	3/20	All	X	X
Poster Presentations	4/24	All	X	X
Final Deliverables	4/29	All	X	X

Expenses

Item	Description	Manufacturer	Part Number	Date	QTY	Cost Each	Total	Link	
Component 1									
Component 2									
Component 3									
TOTAL:							\$0.00		