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1. Purpose of the GPLI initiative

The concept for this initiative originated with AOA Contact Lens and Cornea Section and a desire to increase the number of specialty contact lens clinical externship sites.

With support from CooperVision, GPLI met with contact lens educators and the resulting survey affirmed that this program would be well received by most Schools and Colleges of Optometry. In addition, the rotation length, housing, and other details would be under the direction of the optometry program. Subsequently, a pilot program was performed at both The Ohio State College of Optometry and UMSL College of Optometry with very positive results.

With leadership changes in both CooperVision and AOA CLCS the program stalled. The GPLI infrastructure has also changed with the hiring of Marketing and Development Coordinator and attainment of 501(C)(3) status. A committee structure is in place consisting of Advisory Board members and “Rising Stars” who have recently served on our GPLI Residents Advisory Board.

The need to provide more specialty contact lens clinical experience continues and it is apparent that interest in contact lenses and cornea residencies is increasing. This initiative seeks to increase the number of specialty contact lens externships by 50 over a three-year period which could result in as many as 200 additional 4th year optometry students receiving specialty contact lens practice clinical experience.

This initiative respects the autonomy of individual programs to maintain and create external preceptor relationships in accordance with ACOE guidelines and their individual institutional needs. It is not intended to disrupt existing relationships, but rather to help identify and enhance the ability of specialty contact lens practitioners to educate future practitioners in the art and science of specialty lens fitting.
2. Andragogy of teaching and Critical-Thinking

There is a large body of science on what constitutes effective didactic instruction, less on laboratory instruction, and much less on clinical instruction. It is helpful to understand some general concepts as you craft your individual approach.

**What is meant by Andragogy and how is it different than Pedagogy?**

**Andragogy** is *the science of understanding (theory) and supporting (practice) lifelong education of adults v. child-leading* – Malcolm Shepherd Knowles

It may help to contrast the differences in a simple way.

<table>
<thead>
<tr>
<th>Andragogy</th>
<th>Pedagogy</th>
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<tbody>
<tr>
<td>Learner is in control</td>
<td>Teacher lead and is in control</td>
</tr>
<tr>
<td>Problem-solving, discussion, and service-learning</td>
<td>Little experience – didactic</td>
</tr>
<tr>
<td>Lots of experience for the learner</td>
<td>Standardized curriculum</td>
</tr>
<tr>
<td>Emphasis on application</td>
<td>Learning through process of acquiring content</td>
</tr>
<tr>
<td>Learning occurs through performing tasks and solving problems</td>
<td>External motivation</td>
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**What is Bloom’s Taxonomy and how does it relate to Critical-Thinking?**

**Bloom’s Taxonomy** describes a hierarchy of learning and it has been revised many times since it was first conceptualized by Benjamin Bloom et al in 1956. The apex of the pyramid relates most closely to what academics consider the ultimate goal of learning and what we as clinicians consider **critical-thinking** required to formulate differential diagnoses, guide our test selections, interpret the results, and formulate an efficacious treatment plan. It can be summarized in the diagram below from the Vanderbilt Center for Teaching.

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**Bloom’s Taxonomy**

- **Remember**: Recall facts and basic concepts
  - define, duplicate, list, memorize, repeat, state

- **Understand**: Explain ideas or concepts
  - classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

- **Apply**: Use information in new situations
  - execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

- **Analyze**: Draw connections among ideas
  - differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

- **Evaluate**: Justify a stand or decision
  - appraise, argue, defend, judge, select, support, value, critique, weigh

- **Create**: Produce new or original work
  - design, assemble, construct, conjecture, develop, formulate, author, investigate

---

Vanderbilt University Center for Teaching
3. Site Mission, Goals and Objectives:

Your goals and objectives as a mentor and specialty lens site will be shaped to a large degree by conversations with the extern directors of each program. These will reflect their mission and institutional goals for their graduates in their unique way. Further expectations of their mentors will be set out in their respective memorandums of agreement with you. That being said, you will have the ability to reflect your own practice goals for patient care and practice management which will compliment these other documents.

Defining these goals and committing them to written form helps accomplish several things. 1) It helps focus your thoughts on what you want an extern to get out of their experience with you. 2) It provides a common understanding between you and your extern. 3) It ensures a consistent learner experience across multiple extern rotations.

It need not be a lengthy statement and could contain as few as three to five items which sum up what you want your externs to learn.

For example,

**Goal 1:** By the end of this rotation an extern should be able to select a lens design(s) appropriate for the individual needs of the patient.

**Goal 2:** By the end of this rotation an extern should be able to competently fit, troubleshoot, and finalize a specialty lens fit.

**Goal 3:** By the end of this rotation an extern should be able to properly code and bill for “medically necessary” contact lenses and file for pre-authorization as needed.
Where goals are of a more global nature and define **what** you want your extern to learn, behavioral objectives provide more detail on **how** your extern will meet these global goals. Again, each program will have their unique expectations. You can list out your objectives separately or “map” them under each individual goal. Either way you want them to support your goals. Keeping things succinct is best and you may want to confine the concrete objective to no more than three to five per goal. Using the guidance that follows will help you customize what your practice uniquely offers in the way of specialty contact lens experience.

Continuing our example from above you may create something along these lines.

**SEE APPENDIX A.**

For example,

**Objectives (supports Goal 1)**

1. Understand the importance of curvature, shape and apex location data from topographer/topographer
2. Understand the indications for soft, corneal GP, hybrid, and scleral contact lens designs fitting guides using manufacturer fitting guides
3. Obtain a detailed history on ocular health status, surgical history, previous contact lens experiences, lifestyle needs, and patient expectations.

You would then continue the list for each goal in a similar fashion.
4. **Student Self-Assessments:**

The ultimate goal of clinical education is to produce students that are critical thinkers confident and motivated to serve their future patients with the highest standard of care. Student self-assessments can be instrumental in motivating students to critically establish goals for their learning and periodically review their own goals, progress, and achievements in conjunction with goals and objectives you’ve outlined for them. Self-assessments should also provide space for the student to identify key strengths and weaknesses. This can serve as information that will allow the student to work with their mentors to improve their overall clinical knowledge and skill set. A sample of Student self-assessments can be found in [APPENDIX B](#).
5. Site Orientation

Each Site should aim to conduct a short but structured orientation for the student to discuss specific expectations and the goals and objectives in achieving them. It is recommended to include the following areas in the orientation:

- Tour of the site and facility
- Introduction to key staff and point persons
- Arrange for ID badges etc (as necessary)
- Review scheduling and specific time off policies
- Review infection control policies and procedures. For example, diagnostic lens cleaning etc.
- Review clinical protocol and procedures, exam flows etc.
- Review time off policies - expectations and communications.
6. Instructional content

Just like your behavioral objectives support your externship goals, your instructional content provides the underpinning for how your individual behavioral objectives may be met. The GPLI provides a wealth of resources to help you select the content your feel best applies to your practice’s environment. There are regular student webinars, simulations, calculators, work sheets, an archive of incredible webinars by leading experts in the field, links to CLMA member labs fitting guides/product portfolios, links to partner organizations, and more. These resources will save you an immense amount of time in developing lens, material, and practice management content by tapping into the accumulated knowledge of decades of careful curation.

Access this content here. [GP Lens Institute - GPLI](#)

You may then create a curricular content that reflects your unique educational experience by creating a syllabus for the number of weeks the externs will be with you. Remember to select items supporting specific behavioral objectives. Suggestions for their use include joint activities with your and the extern, asynchronous at home study following a unique patient experience the extern may have with you, or synchronous experiences such as using the online calculator to design a bitoric lens design. Do one, see one, and teach one.

A sample curriculum outline with links can be found in [APPENDIX C.](#)[You would then use some of your own cases or the extern’s clinical experiences with you to test their ability to apply what they have learned. Make sure to include time to discuss the case and for a Q & A session.]
7. Student Evaluations

Individual academic programs will guide you in what their preferred manner of documenting extern performance is as well as how your site will be evaluated by the externs rotating through your practice. Consider providing feedback daily to your extern. Focus on the goals and objectives you expect of them. Include assessments of their 1) technical proficiency 2) diagnostic and critical thinking 3) knowledge of lens designs and materials 4) practice management skills 5) professionalism.

8. Professional Engagement

Professional engagement models professional behaviors while welcoming the extern into the profession. The community of specialty contact lens fitters is a tight-knit, collegial one which prides itself on cutting edge patient care, patient advocacy, and scholarship. Support the AOA CLCS, AAO CCLRT section, CLMA, GPLI, Scleral Lens Education Society, and other groups who espouse these values. Many of these groups offer travel grants, scholarly activities, research grants, and defend our scope of practice as well as patient access. This is an important part of the externs training and is universally endorsed by the schools and college of optometry.

<table>
<thead>
<tr>
<th>American Optometric Association: Cornea/Contact Lens Section (AOA CLCS)</th>
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<tr>
<td>American Academy of Optometry: Cornea/Contact Lens/Refractive Technologies (AAO CCLRT)</td>
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<td>Contact Lens Manufacturer Association (CLMA)</td>
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<td>Gas Permeable Lens Institute (GPLI)</td>
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<td>Scleral Lens Education Society (SLS)</td>
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9. Post-Graduate Educational Opportunities

The number of graduates desiring to continue learning in cornea contact lens refractive technologies programs continues to grow. You are uniquely positioned to cultivate that interest by sharing your knowledge and practice with the extern. ASCO maintains a list of accredited programs at Residency Programs – ASCO (optometriceducation.org). Please encourage your externs to pursue this training and explain how it can lead to a successful career using available resources at Webinar: Why You Should Consider an Optometric Residency - GPLI. Their future, is our future, and directly benefits the patients we serve.

10. Appendices:

Appendix A-Goals and Objectives for your Specialty Contact Lens Site

Appendix B- Student Self-Assessment

Appendix C- Sample Curriculum
APPENDIX A.

Goals and Objectives for your Specialty Contact Lens Site

Goal 1:
__________________________________________________________________
__________________________________________________________________
___________________________________________________

Objectives for Goal 1:
1.______________________________________________________
2.______________________________________________________
3.______________________________________________________
4.______________________________________________________
5.______________________________________________________

Goal 2:
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

Objectives for Goal 2:
1.______________________________________________________
2.______________________________________________________
3.______________________________________________________
4.______________________________________________________
5.______________________________________________________

Goal 3:
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

Objectives for Goal 3:
1.______________________________________________________
2.______________________________________________________
3.______________________________________________________
Goal 4:
____________________________________________________
____________________________________________________
____________________________________________________

Objectives for Goal 4:
1.____________________________________________________
2.____________________________________________________
3.____________________________________________________
4.____________________________________________________
5.____________________________________________________

Goal 5:
____________________________________________________
____________________________________________________
____________________________________________________

Objectives for Goal 5:
1.____________________________________________________
2.____________________________________________________
3.____________________________________________________
4.____________________________________________________
5.____________________________________________________
APPENDIX B.

Student Self-Assessment:
Describe your strengths and weaknesses below and identify 2-3 related goals. Assess progress toward goals and, as appropriate, develop new goals at six months and final.

Initial (Prior to beginning Rotation):
Strengths:

Weaknesses:

Goals:

Midterm:
Strengths:

Weaknesses:

Goals:

Final:
Strengths:

Weaknesses:

Goals:
Sample of GPLI Specialty Contact Lens Rotation Curriculum and Resource Guide

**Purpose:** The purpose of this guide is to serve as a resource for peer-reviewed literature, resources and expert clinical guidance on topics related to fitting and managing specialty contact lenses for your student rotating through your specialty contact lens site. For each topic, there are options for reading, watching or listening more on these topics.

1. **Keratoconus:**
   a. Read: *Global Consensus on Keratoconus and Ectatic Diseases (April 2015)*
   b. Watch: *Four-Part Lecture Series on Keratoconus by Dr. Christine Sindt (GPLI.info)*

2. **Myopia Management:**
   a. Read: *International Myopia Institute: White Papers and Clinical Summaries*
   b. Watch: *Contact Lens Options for Slowing Myopia Progression on October 20, 2022 @9PMEST (GPLI.info)*
   c. Listen: *The Myopia Podcast*

3. **Orthokeratology:**
   a. Read: *BCLA CLEAR Orthokeratology (April 2021)*
   b. Watch: *Webinar: The Nuts and Bolts of Orthokeratology (GPLI.info) and Webinar: Topography-guided Troubleshooting for Orthokeratology (GPLI.info)*

4. **Corneal GP spherical:**
   a. Read: *GP Lens Management Guide – 2 and 3: Spherical GP Fitting and Problem-Solving (GPLI.info)*
   c. Play: *GPLI Click ’n’ Fit*

5. **Corneal GP torics:**
   a. Read: *GP Lens Management Guide- 6 and 7: Torics (GPLI.info)*
   b. Watch: *Webinar: Spherical and Toric GP Design, Fitting, and Problem-Solving (GPLI.info)*
   c. Play:
      i. *Mandell-Moore Bitoric Calculator*
      ii. *GPLI Spherical and Toric Calculator*

6. **Multifocal and Presbyopia:**
   a. Read: *GPLI Lens Management Guide Page 4 and 5*
b. Watch: Webinar: Soft Toric and Multifocal Fitting Pearls

7. Scleral contact lenses:
   a. Read: A Guide to Scleral Lens Fitting (2nd ed.)
      And GPLI Troubleshooting Scleral Lenses FAQ
   b. Watch: Webinar: Improving Scleral Lens Fitting Through Understanding Scleral Lens Shape

8. Hybrid contact lenses:
   a. Watch: Hybrid Applications for Normal and Irregular Cornea

9. Troubleshooting contact lenses:
   a. Read: GPLI GP Lens Case Grand Rounds Troubleshooting Guide
   b. Watch: Webinar: Troubleshooting Corneal GP Lenses

10. Billing and Coding:
    a. Webinar: Introduction to Billing and Coding - GPLI
    b. Specialty Contact Lens Coding and Billing Update (gpli.info)

11. Dry Eye and Ocular Surface Disease
    a. DEWS II
    b. Read: MGD Workshop
    c. Read: Contact Lens Discomfort Workshop

12. Additional
    a. Read: BCLA CLEAR Papers