

DEVELOPING OPEN EDUCATIONAL RESOURCES

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WHAT IS OER?

From the Creative Commons group:

Open Educational Resources (OER) are teaching, learning, and research materials that are either (a) in the public domain or (b) licensed in a manner that provides everyone with free and perpetual permission to engage in the 5R activities.

The **Five R's** are:

1. Retain
2. Reuse
3. Revise
4. Remix
5. Redistribute

EXAMPLES

- A textbook
- An article
- Open courseware (e.g., MIT Open Courseware)
- A website
- An applet
- Computer code in an online repository
- Open access journals

Claim: Adoption of open resources promotes values compatible with the Kingdom of God.

- Stewardship
- Love of neighbor
- Community

My OER Work

OER USE IN MY CLASSES

- Math 149: Explorations in Modern Math **Math 149: Explorations in Modern Math**
- Math 152: Calculus I
- Math 153: Calculus II
- Math 203: Elementary Linear Algebra
- Math 212: Discrete Structures **Math 212: Discrete Structures**
- Math 303: Advanced Linear Algebra
- Math 304: Abstract Algebra I **Math 304: Abstract Algebra I**
- Math 305: Abstract Algebra II
- Math 311: Real Analysis **Math 311: Real Analysis**
- Stat 203: Generalized Linear Models

- Rewrote course description in 2017 to shuffle the order of topics between Abstract Algebra I and II
- Best inquiry-oriented resource for the new course starts at \$130
- Melissa Lindsey and I wrote *Rings with Inquiry* in $\text{\LaTeX}$, AIM converted to PreTeXt for Fall 2020
- Iterated every year or so since

- Course Goal: provide a rich QR experience for students in the arts, humanities, and education
- Traditional textbook: new from publisher, \$142.95 (looseleaf)
- OER began as course lecture notes, iterated and rewritten in PreTeXt
- Focus of my 2024–2025 course release

Technical Details

Caveat: There are lots of ways to do this!

TOOLS I'M USING

- Text/code editor (can be free)
- An installation of **pretext-cli**, a Python package (free)
- A web server (free or paid)

Theorem 2.2.17.

Every PID is a UFD.

► Hint.

HTML output.

THE PRETEXT CODE

```
1 <theorem xml:id="thm_pidisufd">
2   <idx>
3     <h>unique factorization domain (UFD)</h>
4     <h>PIDs are UFDs</h>
5   </idx>
6   <statement>
7     <p>Every PID is a UFD.</p>
8   </statement>
9   <hint>
10    <p>
11      For part 2 of the definition, use induction on the number of
12      irreducible divisors of an arbitrary nonzero nonunit.
13      Mimic the proof of <xref ref="theorem_FTAuniqueness" />.
14    </p>
15  </hint>
16 </theorem>
```



https://mkjanssen.org/summer_sem2025.html

HOW COULD I GET STARTED?

- Find an OER and consider using (part of?) it in a class for the fall!
- Polish something you've made and put it online!
- Find others who are interested, e.g., the Iowa OER communities of practice—talk to Jenni Breems!
- Look for grant opportunities!

Thank you!

OER:

- Contribute positively to retention
- Provide similar learning outcomes compared to traditional commercial texts
- Significantly lower DFW rates
- Are well-regarded by students
- Promote faculty engagement with course materials and implementation of “transformative” pedagogies
- Lower the costs of course materials without sacrificing quality or learning outcomes