Peer-Led Team Learning

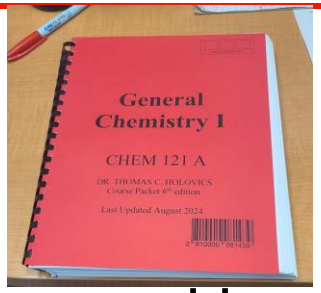
General Chemistry (120A, 120B, 131, 121A, 121B):

- ❖ Faculty: Holovics Wiediger Norcio Finger Shaw Kniepkamp
- ❖ Many sections, ~1000 students per semester
- ❖ 50-minute session once a week built into schedule
- ❖ Small 10 student workshops lead by students for practice

Student Feedback

- ❖ Small group directed sessions helps individual attention
- ❖ Very easy to ask questions to peers
- ❖ Solidifies classroom problem solving

Course Packets to Improve Student Notetaking

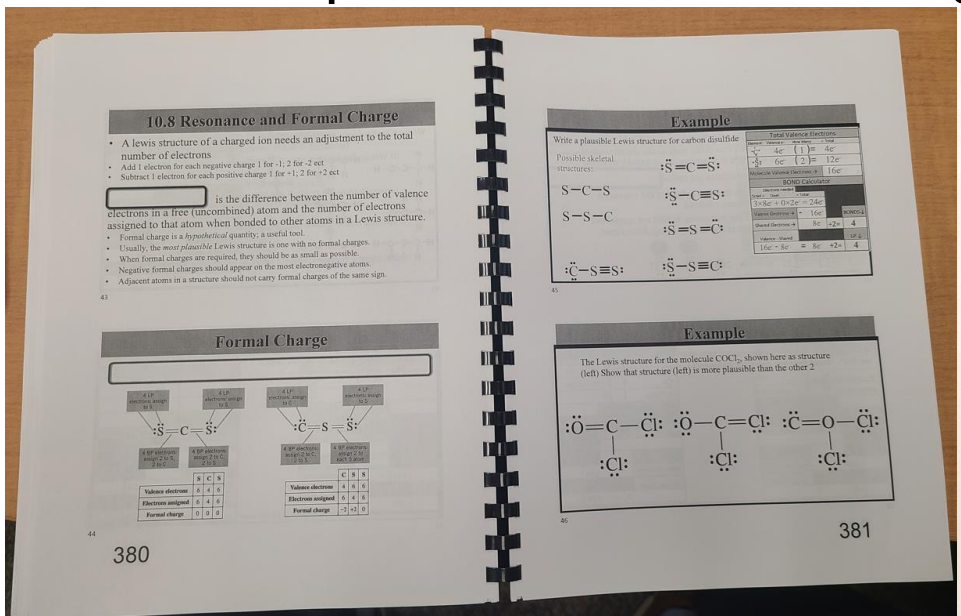


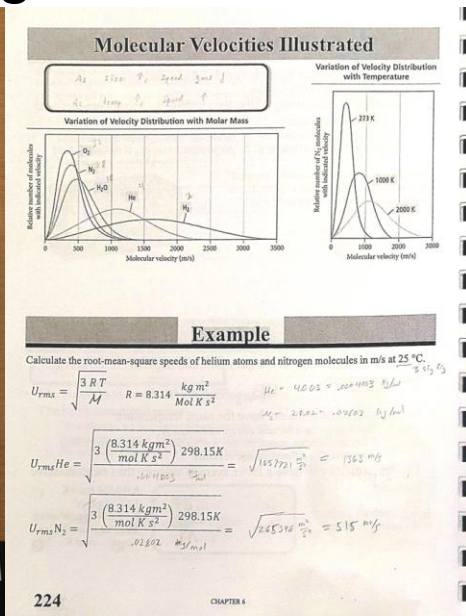
General Chemistry (120A, 120B, 121A, 121B):

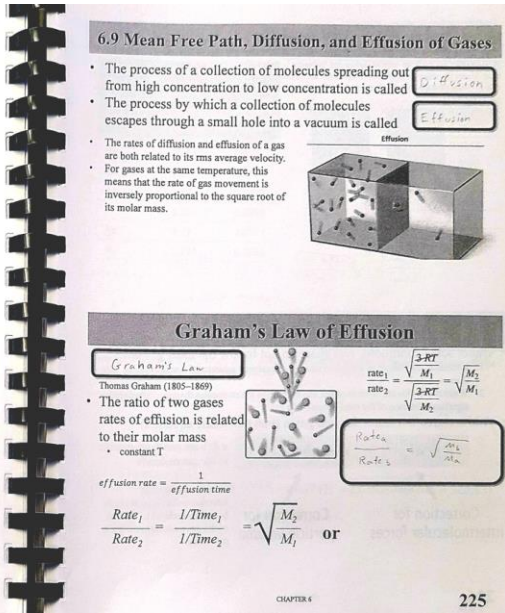
- Faculty: Holovics Norcio Kniepkamp
- Roughly ~600 students per semester
- Produced lecture course packets to facilitate notetaking

Student Feedback

- Very helpful to guided notetaking
- Great study tool during and after the semester
- Keeps attentiveness during the lecture to fill in the boxes







New Initiatives: Learning Catalytics

General Chemistry (121A, 121B):

- Faculty: Holovics
- Roughly 200 – 300 students per semester
- Students use any internet capable device(phone laptop ipad)
- Classroom response system. BB integration. Real time stats
- Wide range of question types

Student Feedback

- They like how it keeps them engaged with the lecture (55)
- They like getting rewarded for participating in class (30)
- Going over some of the questions to learn from mistakes (29)
- Getting challenged to apply the new content learned (21)

Future Refinement

- Streamline the amount of lecture time it takes
- Incorporate group work
- Polish questions types and formatting

Learning Catalytics Through Pearson

3. short answer

Write the symbol from the periodic table of the element with this electron configuration:

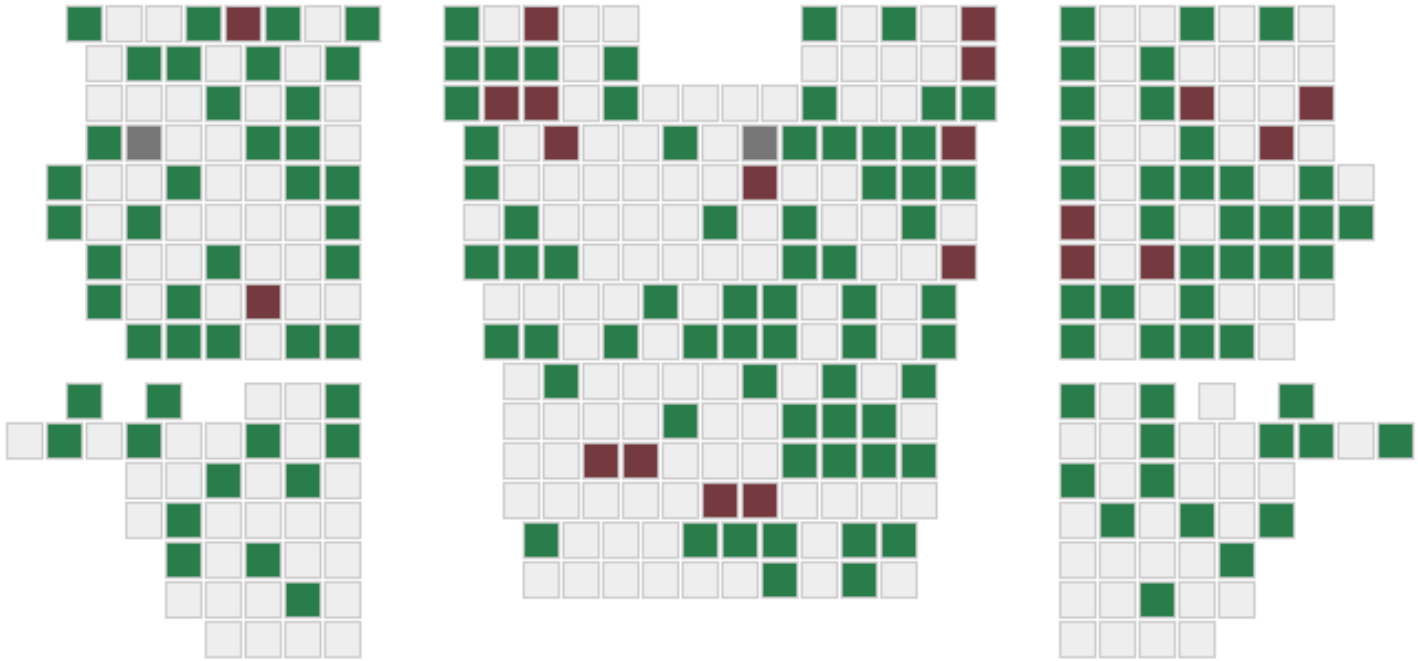
$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$

Round 1

177 responses, 88% correct

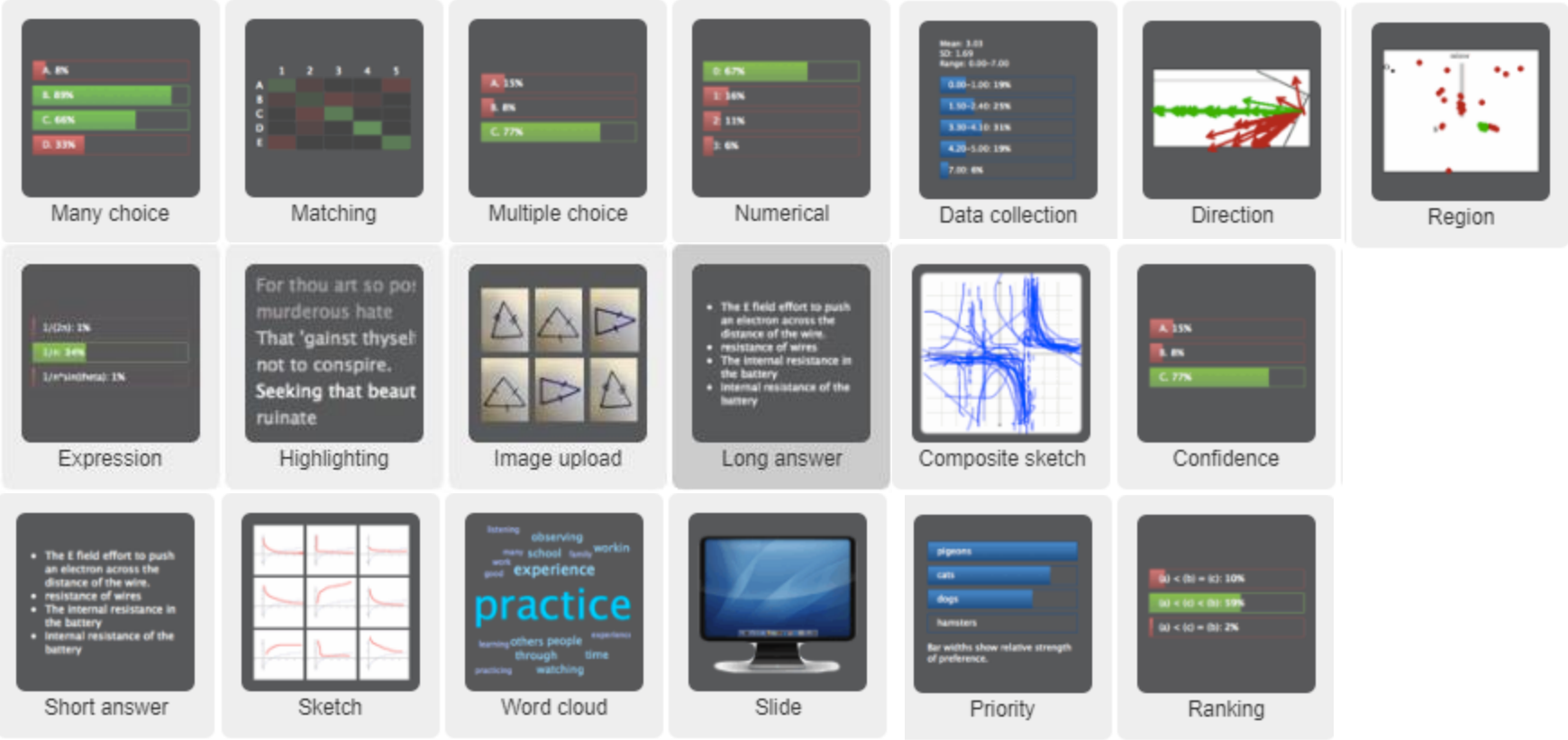
- Ru: 88%
- Zr: 2%
- Rh: 2%
- Pd: 2%
- Mo: 1%
- Te: 1%
- Rs : 1%
- Sn: 1%
- Ruthenium: 1%
- Rn: 1%
- Sc: 1%
- Se: 1%
- Sm: 1%
- Cd: 1%

Seat map



Learning Catalytics

A Variety of Question Types



Preliminary Findings

- ❖ Attendance has been much stronger
- ❖ Classroom attention has increased
- ❖ Student success on graded assessments have increased

FLIPPED Learning in Organic Chemistry

- Fall 2018: Attended NSF-IUSE iFLIP Workshop (Dr. Chaya Gopalan)
  - Flipped Organic I/II lectures
  - Collected data regarding faculty and student perceptions and performance

Student Perception of Learning Surveys: Key Findings

- Feel more engaged and confident
- Would take another flipped class; overall positive attitude
- More comfortable with video lectures (post-pandemic)
- Challenges:
  - Poor note-taking skills
  - Student reliance on ability to look up information
  - Fewer students participate in optional learning opportunities (challenges of student buy-in)

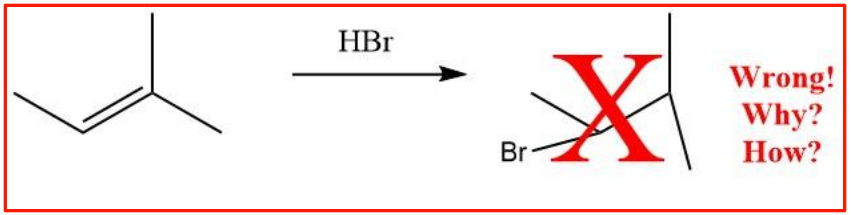
Faculty Developments for Organic Chemistry

Organic Chemistry (241A/B):

- Faculty: De Meo, Lu, Luesse, Miller
- 4 sections each semester, 35-120 students each
- Either MWF 50-minute or TR 75-minute sessions
- 3 credits, primarily STEM majors

Issues we face:

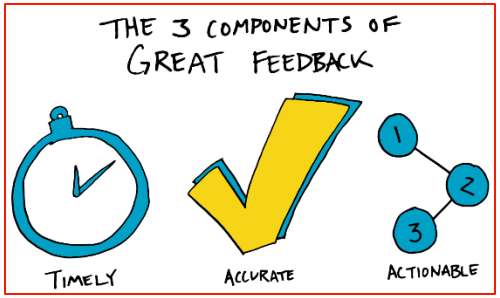
- Difficulty scheduling optional help sessions that are embraced by students most in need of assistance
- Decreased participation in office hours
- Challenge of providing timely feedback on drawings
- Students need structured time for reflection/practice



Organic Chemistry (CHEM 241A/B)

To address these issues:

- ❖ Added extra contact hour - no change to credits
- ❖ Faculty had to develop activities/problem sets
- ❖ Variations in implementation by instructors
  - Optional vs required sessions
  - Points for activities
  - Small group work vs whole class problem-solving



Benefits:

- ❖ More faculty contact
- ❖ Direct, timely feedback to students
- ❖ Small group work building stronger peer community
- ❖ Problem-solving that can push beyond fundamentals
- ❖ Students more likely to ask follow-up questions