

# OrganicERs a Growing Online Community

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Abstract: The organicERs community (<http://organicers.org>) has been organized to provide an online site where college-level instructors of organic chemistry can share curricular materials and network. With sponsorship from the NSF-funded Chemistry Collaborations, Workshops and Communities of Scholars program (cCWCS, <http://ccwcs.org>), we have led two-day workshops in 2013 and 2014. Workshop leaders and participants have contributed tests, quizzes, syllabi, etc. to the site. Other organic chemistry faculty members have joined the community, which includes access to discussion forums and an abundance of materials used at a wide variety of institutions.



Fig. 1 OrganicERs.org homepage

OrganicERs is the outgrowth of conversation amongst a handful of organic chemists over lunch in Pollock Commons at the 2012 BCCE. We took a brief hiatus from discussing the removal of JoePa's statue to think about what could improve our own teaching and that of other organic faculty around the country. We were aware of VIPER and all that it does to support inorganic instruction. Could we do something similar for organic chemistry? David Collard, co-PI for the NSF-sponsored Chemistry Collaborations, Workshops and Community of Scholars program (cCWCS), thought we could.

Four months later cCWCS approved our application to hold a mini-workshop on Active Learning in Organic Chemistry in Charlotte, NC. David also built a wonderful website, <http://organicERs.org>, for an online home. As June 2013 approached the presenters, and to a lesser extent attendees, began uploading exams, quizzes, active learning questions, syllabi, and lab experiments to the website. This material was eventually placed behind a firewall to ensure that only registered community members (verified as faculty) could gain access. The workshop itself was almost 72 hours (depending upon hours slept) of great conversation about pedagogy amongst 33 organic chemists. Where the presenters had relatively little actual experience with active learning methods (half of us had none) attendees with a year or more of experience took the lead. We all left Charlotte members of a community, excited to try something new in the coming academic year. One workshop participant remarked: "What a great group of passionate educators! I hope the organicERs website becomes/remains an active location for the sharing of ideas/creative assignments. Thanks for including me!"<sup>1</sup>

Four of the presenters most committed to active learning in organic chemistry formed a Leadership Board to move OrganicERs forward. We set up procedures to approve new members and content, made suggestions to improve the website, implemented ideas we learned in Charlotte, and planned a 2014 cCWCS workshop.

The Charlotte workshop and an additional year of active learning in our classrooms enabled Denver 2014 to be much more focused on active learning. All four members of the Leadership Board were able to present on pedagogies that they had at least a year's experience with. The fifth presenter had years of experience flipping his classrooms at a community college and was thereby uniquely qualified to speak to the large number of community college faculty in attendance. The workshop only lasted 68 hours, but was again full of great discussion about teaching and learning organic chemistry. We left with new ideas to pursue including several participants planning to dramatically increase the active learning in their classes.

OrganicERs now has almost one hundred fifty members with access to hundreds of resources:

- 65 exams and quizzes
- 31 individual exam questions
- 77 active learning questions / resources
- 18 lab experiments
- 21 syllabi

[Members of the Leadership Board](#) briefly review resources before approving them, but we are shifting toward a post-publication review model. This means it is important for members that use a resource to comment upon its value. A rating system for value and difficulty is under development. Membership is approved only for individuals who are faculty members who teach organic chemistry at institutions of higher education.

Also in process is our ability to maintain contact with members and measure impact. The Leadership Board knows that OrganicERs has transformed classrooms, led to three talks at the 2014 BCCE,<sup>2-4</sup> and formed the basis of several manuscripts currently in preparation. We know what participants have been excited to try upon leaving the Charlotte and Denver workshops, and several have communicated their experiences after their first year.<sup>5</sup> We plan to pursue these aims better via a forum and blog on the website and a bimonthly newsletter to be distributed via e-mail. Our first [newsletter](#) was distributed in early October.

#### Notes:

- (1) More comments from workshop participants are available. ([Appendix 1](#))
- (2) Justin B. Houseknecht P290: Flipping the organic chemistry classroom using the Explain Everything app
- (3) Vincent Maloney P293: Transformation of the traditional organic chemistry lecture sequence into a hybrid of face to face peer learning and online lecture: Another flipping organic chemistry course.
- (4) Elizabeth Blue P116: Meeting students where they are: utilizing Facebook as a class discussion board and for virtual office hours.
- (5) Follow-up comments from the 2013 Charlotte workshop participants in summer 2014. ([Appendix 2](#))

#### **Appendix 1:**

##### **Quotes from Charlotte workshop participants:**

- Thank you so much. I learned about all kinds of new material and ideas for teaching in class!
- JITT - better buided reading of upper level text will improve student reading skills & make more productive use of class time.
- I plan to do the flip method & perhaps use one of the iPad apps to prepare the lectures. I also plan to use the organicERs website for many resources - problem solving, writing assignments.
- What a great group of passionate educators! I hope the organicERs website becomes/remains an active location for the sharing of ideas/creative assignments. Thanks for including me!
- I will use flipping techniques to have students learn contents outside of the lecture so that we can use class time to discuss more advanced concepts.
- Nice concise way to focus on one aspect of teaching. Great collegiality and willingness of colleagues to share resources and work together. (Location made it easy to focus on work at hand rather than wandering off for sight seeing, which people tend to do!)
- It totally met my expectations. I am leaving with a ton of new ideas. I have to temper what I can do next year.

- I had attended a workshop several years ago when we had to get our own meals. This was really nice that the meals were brought to the hotel and we all ate together.
- I am a low-tech person and attending this workshop really helped me regarding how to teach organic chemistry class with useful tools and resources.
- Very well done and well organized. Lots of excellent information presented by very knowledgeable speakers and attendees.
- Yes...almost overwhelming...but manageable. I now have 2 years of improvements for my classes! Now I can disseminate stuff to my department!
- I plan to incorporate some small lecture capturing and introducing videos before lectures; use lecture time more for problem solving and discussions. Educreations seems very powerful & user-friendly. I have also tried Doceri - it works well for my current ambitions.
- Workshop met all my expectations, and it often exceeded them. I learned a lot and have collected a large bank of new resources and generated ideas on how to adapt and increase what I am currently doing.
- As a "newer" organic chemistry professor, I have struggled to find ways of engaging students in the active learning environment....I intend to use Educreations & Camtasia (with Bamboo tablet) to enhance student learning & review general chemistry. As a user of the Smith textbook, the first 4 chapters are devoted to general chemistry review. This is way too much time to "review." I intend to prepare video lectures covering these four chapters. This should help with the "rush" at the end of the semester.
- I have ideas worth pursuing & contact info for people who can help me if I encounter roadblocks.
- I already flip my class & was looking for activities to conduct during our face-to-face meeting time in organic. I found the "JiTT" to be beneficial because it helped put into perspective what I could try in terms of clickers & other materials right at the start.
- I also like the idea of using educreations for the students to submit questions/solutions to things electronically with pictures & drawings.
- I have met many people who I think I will keep in contact with and I'm very excited to share materials. When I started teaching I had absolutely no materials shared with me, and only limited resources online.
- I would like to start introducing the JiTT techniques into the sophomore organic chem courses. The goal will be eventually to move the sequence to a flipped classroom.
- I would like to use clickers &/or other CATs. Some of the ideas from the Livescribe & Educreations will be used in the recordings that I currently do for the course.
- I would like to increase student involvement in the class. The idea of "forcing" students to read and/or participate in problem solving seems to be very beneficial. My hope is to flip the class within the next year. I have yet to figure out the method to use for the lectures as I am currently using none of these techniques. Once flipped I envision class time to be used for daily quizzes, then group work solving problems.

- This workshop more than met my expectations. The amount of new information that I have acquired is somewhat overwhelming at the moment, but hopefully I can sort it out and begin to implement stuff.
- Very useful to hear outstanding presentations & then discussions from others using these ideas/methods. Resources/website will be very valuable.

### **Quotes from Denver workshop participants:**

- The time was used very efficiently and there was a good balance of active and passive offerings, and discussion. The only thing I would have enjoyed was a more robust discussion of assessment.
- I am excited to get back and start working on some of these technologies and pedagogies. I haven't been this inspired in years.
- I learned so much I haven't even really begun to process it all. I will organize the information and make decisions ASAP.
- I am much more aware of the types of technologies that are available to use in the classroom. With so many options available to educators, it was particularly helpful to see what other educators are using successfully and to hear some of the nuances of each device/program. I definitely don't feel like a "master" at any of these new technologies, but it was a great springboard for me to begin researching on what might work best for me.
- The workshop was very informative. I do incorporate many of these aspects already, and I liked to be able to network with everyone to get more experience. It would help to have hands-on experience in terms of seeing what it looks like in practice. One area that would be helpful is to see it in different types of schools (public, private, small large).
- I was very familiar with the concept of flipping the classroom, but less so of the JiTT. I had virtually no knowledge of the technologies available for lecture capture or pencasting, so that was extremely helpful.
- I can say this was a very informative workshop. I feel I can apply any of the technologies with comfort given the teachings presented.
- The workshop was very interesting. It gave me an overview of the latest pedagogy and technological advances in effective teaching in organic chemistry. I wish there was a more hands-on component to it.
- I am thankful for the opportunity to attend the Active Learning in Organic Chemistry workshop. What struck me was how relatively simple these technologies or pedagogical styles are to implement if you set your mind on it. And I am looking forward to integrating some of them to my teaching. In addition, a big change for me during the workshop was the fact that I came out of the program seriously considering fostering more peer-to-peer teaching/learning by using small groups in my class.
- The presenters were excellent and described numerous ways to approach the use of JiTT and the flipped classroom. I think it would have been helpful to have an additional day just to work on some class materials. For example, I would like to use lecture-capture to mini video

lectures for my course. Of the three (very) different methods/technologies that were presented, I'm not sure which option to choose or whether another different method might work best for me. I find it helpful to try out new software/technology for the first time when there is an expert present.

- Very well organized and I learned a lot on the iPad screen, just in time teaching, livescribe pen, and video capture. I could relate to everybody in the room since this workshop was for organic chemists. I hope to attend more workshops like this. Thanks to the organizers.
- I thought the workshop was outstanding. I really appreciated all the effort that went into the thorough and engaging presentations. I am anxious to implement JiTT.

## Appendix 2:

### **Comments from 2013 workshop participants in summer 2014:**

- If I can get them to work properly, I plan to use clickers for organic. I have used the livescribe pen and flipped some lectures. I tried the Just in Time teaching but it didn't work as well as I would have liked. I got behind on assigning reading questions and wasn't as consistent as I needed to be, thus students didn't always know when to expect reading questions and they fell behind. I may try several assignments again this year to see how they go.
- Here's a summary of what I tried:
  - Partial Flipping of Organic Chemistry (AY 2013-14)
  - Software - Educreations (Recording with a headset with a microphone)
  - Lessons - topics that students traditionally struggle with (arrow pushing, formal charges, MO Theory, key named reactions and associated mechanisms, multi-step syntheses/retro synthetic analysis)
  - Lesson Lengths - 5 to 15 min.
  - Typical Day - Q&Q, in-class assignments, problem solving, and some lecture
  - Student Response - Absolutely positive
  - Partial Flipping of Organic/Inorganic Spectroscopy (2 hr. lecture) + Associated Lab (two 3 hr lab) (Planned for F2014)
- I am planning on starting to flip the classroom for OChem. I got Camtasia and I'm going to start messing around with recording lectures. I've also used the JITT method in my gen chem class to get them to read. Students who do it recognize the benefit. I still need to hone the questions. In my gen chem class, I still do a lecture-based approach though. I'm thinking I might flip certain topics in gen chem and see how that goes. I'm also looking into using electronic notebooks for my OChem and research. At these conferences, if someone is using a cheap/free electronic notebook, that would be great to know.
- I don't know if these "count" as technologies, but I used the following last year in my classes:
  - Educreations
  - Facebook group as a class discussion board/online office hours (presenting on this at BCCE and considering writing a JCE paper on this)

- class & lab website
- Tried Mastering Chemistry and was unimpressed.
- Some POGIL/in-class problem solving/active learning
- "Manual" Clickers :) (hand raising/# of fingers showing, etc. :))
- And I plan to use all of the above this year again except Mastering Chemistry, and am using the new Karty text, so will be using SmartWork.
- I tried out Just In Time Teaching last summer with some success, but had huge sections this past academic year and was the only Organic Chemist as our old Chair became Dean and I was in charge of the hiring process for his replacement, so I was pretty much in survival mode last year :)
- I have been using the Just-In-Time assignments. The JIT has been used mostly in conjunction with the Klein "Second Language" texts, though small videos and reading assignments out of the Wade text have also been used. I have been using the JIT assignments as a way of preparing the students for the days lecture subject. The participation has been consistently in the 80-95% range and the feedback has been very positive. I have also been using clickers and the new Learning Catalytics from Pearson as well, though in a much more limited fashion. Thank you once again for all of you and your colleagues' hard work. We greatly appreciated the opportunity to participate in the workshop last year.