

## It's a Dead Man's Party: Integrative Evolutionary Education through Darwin Day

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### ABSTRACT

Although evolution is one of the most transformative and integrative theories in science, it remains difficult to entice university students to pursue evolution-oriented courses. Evolution is the only theory that ties together all life and behavior—including ultimate, proximal, physiological, and developmental explanations. Students who are not exposed, lack a fundamental STEM building block which may severely limit their understanding of the natural world and future career options. Darwin Day provides an important opportunity to showcase the interdisciplinary applicability of evolutionary theory in an engaging, accessible manner. In this paper, three biological anthropologists discuss initiating Darwin Day events in diverse university settings with a goal of building annual, sustainable programs. The purposeful lightheartedness of Darwin Day events engage non-science majors while highlighting the interdisciplinary nature of evolution for science students. Although our goal was the same—connect more people with evolutionary perspectives—our route, scope, successes, challenges, and access to resources differed. Combined, we model a variety of opportunities to encourage students to pursue further evolution-based courses and conversations, especially those specifically addressing human evolution. This template will be useful for others wishing to implement similar low-stakes opportunities to connect students with evolution education at their own institutions.

### KEYWORDS

Darwin, Evolution Education, Interdisciplinary, Evolution, STEM Education, Human Evolution, STEM Education Outreach

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Evolution is one of the most transformative and integrative theories of the modern era (Wilson, 2007). It is the only explanation that ties together all life and

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behavior, including ultimate, proximal, physiological, and developmental perspectives (Tinbergen, 1963). Evolution, natural selection, genetics, and adaptation are cornerstones of the Next Generation Science Standards (NGSS Lead States, 2013) and one of the key “crosscutting concepts” that bridges them with humanistic approaches of the Common Core Standards for language arts and social studies (Common Core Standards Initiative, 2012). However, in recent years, the US has seen an increase in anti-evolution education policies that stress “equal time” or “teaching the controversy” (Hawley & Phillips, 2017; Scott & Branch, 2003).

One of the cornerstones of this divide is epistemological resistance to *macroevolution* pertaining to humans. Studies show that, although public acceptance of *microevolution* (change in allele frequency in a population over time) is fairly high, human macroevolution (descent with modification from a common ancestor) is frequently viewed with skepticism (Sinatra, Southerland, McConaughy, & Demastes, 2003). This differentiation is longstanding (Numbers & Stephens, 2017), and failure to take this into account leads to misunderstandings between so-called “pro”- and “anti”-evolution factions (Hawley, 2017). This controversial differentiation is not a small one, as the concept of evolution is often saddled with misinterpretations of race, selfishness, spirituality, and self-determination (Sinatra, Brem, & Evans, 2008), all of which increase the challenges associated with evolution education for a broader audience.

Despite its importance, students can choose to avoid evolution-related curricula in college for three recurring reasons: (1) there are almost no departments or programs that require a course in evolution to graduate, with one notable exception—Anthropology programs that include biological anthropology; (2) anti-evolution biases instilled in students during K-12 education; and (3) curricular separation of sciences from humanities (Arnhart, 2005; Wilson, 2007). If students are not exposed to human evolution in secondary school, they may never be, as courses that cover human evolution are generally electives outside of Anthropology majors and minors. As a result, students are not guaranteed a comprehensive science education that includes human evolution before graduating high school, which suggests that university-level educators are the only chance many students will have to receive systematic exposure to the extensive evidence for human evolution. Yet, getting such students into the right courses is another challenge. College students choose whether they take evolution courses or not based on exposure in high school (Rissler, Duncan, & Caruso, 2014). This paradox reinforces the importance of teaching human evolution at the university level but also means there must be focused interdisciplinary efforts within colleges and universities to engage students more specifically with human evolution.

Systemic changes need to occur in K-12 human evolution education across the United States. However, in this paper we focus on encouraging student interest and engagement at the university level as an essential component to evolutionary-based education. Regardless of major, the majority of universities require their students to take 2-3 science courses. However, studies show that students exposed to creationism or taught that there is a controversy about evolution in high school are unlikely to take an evolution course in college (Rissler et al., 2014). Therefore, offering more evolution courses across disciplines is going to have little impact. To help address this gap, we suggest that creative, low-risk, lighthearted approaches to

evolution education can introduce students who might not otherwise commit to a whole course on their own. For instance, celebrating Charles Darwin's birthday via "Darwin Day" events can foster the inclusivity and "variation" so central to evolution and lead people to conceptual changes in openness to these complex ideas.

Darwin Day is an interdisciplinary outreach event that provides a framework for showcasing evolutionary theory and making it more accessible to a broader audience, as outlined in Table 1. In this article, three biological anthropologists share experiences developing annual Darwin Day events at a variety of educational institutions. The goal of biological anthropology is to understand humans from proximal and ultimate perspectives that incorporates biology, chemistry, epidemiology, primatology, and paleontology to answer core questions about what it means to be human. As the "most humanistic of the sciences and the most scientific of the humanities" (Alfred L. Kroeber, paraphrased by Wolf, 1964: 88), anthropology is in a unique position to highlight the interdisciplinary nature of evolution.

**Table 1.** Goals of the Darwin Day Events Presented in this Article.

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| Increase exposure to human macro-evolution  |
| Connect more people with evolutionary perspectives                                  |
| Reach diverse student body with evolutionary perspective                            |
| Creatively bridge STEM and non-STEM disciplines through theme of evolution          |
| Promote an environment that is more inclusive of all realms of evolutionary studies |
| Demystify evolutionary theory and correct misconceptions                            |
| Train emerging evolution scholars   |

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This paper provides a framework for others to organize Darwin Day events. Darwin Day provides an engaging opportunity for students and community members to gain exposure to evolution education in a low-stakes, low buy-in setting. For instance, attending a Darwin Day event takes less financial and time investment than taking an entire course. However, the event can increase interest and perceived accessibility in these courses. These events have the ability to expand evolutionary education beyond the traditional students who would self-select evolutionary coursework and increase the diversity of individuals exposed to this important material.

#### A (Brief) History of Darwin Day

Following Charles Darwin's death in 1882, evolution supporters have honored his life with varied celebrations. The University of Toronto held a "Phylum Feast" at the end of some of their biology courses beginning in 1972. In the US, Salem State University began a week-long "Darwin Festival" in 1980 that continues to this day. In 1995, Robert Stephens led the Silicon Valley Humanist Community in starting an annual Darwin Day Celebration. In 1997, Massimo Pigliucci organized an

annual Darwin Day Celebration at the University of Tennessee (Goodman, 2008). Amanda Chesworth joined Stephens in 2000 to establish the *Darwin Day Program* in New Mexico (History of the Foundation: 2016). Two years after that, the *Darwin Day Celebration*, a 501(c)(3) foundation was established to promote science education and public outreach. In 2009, the American Humanist Association joined the foundation and has led efforts ever since (Darwin Day Celebration, 2009). In addition, the foundation campaigns for the recognition of Darwin's birthday each year as a day of national science celebration and has had much success with counties and states passing Darwin Day Resolutions (International Darwin Day Foundation, 2017).

Darwin Day celebrations can be extremely important in an atmosphere of manufactured controversy and resistance to human evolution that is pervasive in the US (Goodman, 2008). Methods of celebration vary according to location, student reception, monetary constraints, and other factors. However, at the most basic level, celebrations are successful because they involve a group of people passionate about celebrating the life and legacy of Charles Darwin (Crivellaro & Sperduti, 2014). A large-scale Darwin Day celebration held at the North Carolina Museum of Natural Sciences touts its program as the "largest event of its kind in the country!" The museum features a keynote speaker, presentations on evolution or Darwin's life, and themed exhibits (North Carolina Museum of Natural Sciences, 2016). While large-scale Darwin Day productions bring in famous speakers, it's important to note that there are a multitude of other ways to celebrate Darwin Day that focus on creativity and integrating science and humanities. Many celebrations feature events with foods like "primordial stew" or birthday cake (Schueler, 2011). Part of the University of Tennessee's week-long Darwin Day celebration includes puppets and a themed cake contest (Darwin Day Tennessee, 2016). The Dinosaur Park in Florida hosts a "blue footed booby dance off competition" (International Darwin Day Foundation, 2016). University of North Georgia held a "Fifty Shades of Darwin" theme in 2016 that included a "Get Your Fitness On" art contest (Barding, Smith, Aganovic, & Kanak, 2017), and the University of Alabama has held Darwin Day music video or song parody contests (Lynn, 2016).

### Reproducing Darwin Day

Darwin Day provides an important opportunity to showcase the interdisciplinary applications of evolutionary theory in an engaging, accessible manner. We compare and contrast Darwin Day events recently organized in three university settings, including an Allied Health Sciences Liberal Arts University (Grand Valley State), a traditional Liberal Arts University (University of North Carolina Wilmington), and an R2 Doctoral University (University of Alabama).

#### Perspective 1: Allied Health Sciences Liberal Arts University (Grand Valley State<sup>1</sup>)

Grand Valley State University (GVSU) is a public liberal arts institution in

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Grand Rapids, Michigan. A large proportion of its undergraduates pursue careers in the Allied Health Sciences and go on to become physician assistants, physical therapists, doctors, nurses, and other similar vocations. GVSU held its first Darwin Day celebration during the second week of February 2016. We learned three lessons about planning a local Darwin Day celebration: develop collaboration and early buy-in, tailor the event to an institution, and incorporate existing programs.

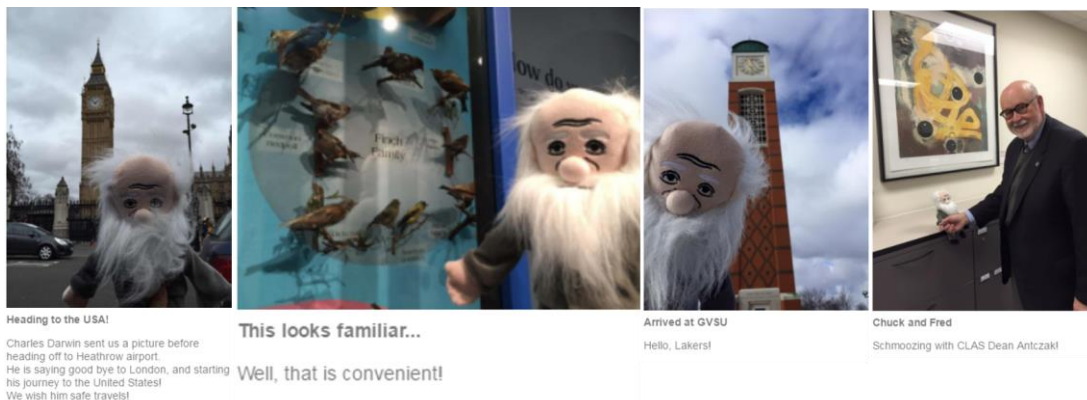
### Importance of Collaboration

The GVSU planning committee was ambitious and made Darwin Day a university-wide event. To avoid limiting the appeal to the “science-minded,” we selected a planning committee that included science (biological anthropology) and non-science disciplines (art and library studies). The art and library members of the committee brought a necessary non-science perspective to our celebration via an evolution-themed art exhibit and polished, eye-catching promotional materials, such as posters, pins, and mugs, in addition to ideas that would appeal to a broad base (Figure 1). There was also a web based photo montage of “Darwin’s Journey to GVSU” that followed a plush Darwin from his home in England to his party in Michigan (Figure 2).

**Figure 1.** Example of promotional material for GVSU’s Darwin Day event.



**Figure 2.** Examples from “Darwin’s Journey to GVSU”. More at <https://www.gvsu.edu/darwinday/darwins-journey-to-gvsu-12.htm>



Overambitious planning can lead to stress and disappointment. Originally, we envisioned a huge event with a big-name keynote speaker, students and faculty presenting their research, departments displaying how evolution is at work in their individual fields, a movie night, improv comedy show, costume contest, scavenger hunt, and an all-day reading of *Origin of Species*. However, we soon realized that doing all of these the first time was untenable. We decided to save the all-day reading, costume contest, and scavenger hunt for future events, which made the primary events more manageable. The celebration was ultimately successful simply because of committee’s drive to make Darwin Day happen. In addition to the core planning committee, we found volunteer support for this event from a number of enthusiastic and helpful departments and student organizations. We gave the volunteers clear objectives but let them decide how to best go about meeting those goals. This strategy provided partners complete freedom, which they enjoyed, and prevented us from time-consuming micromanaging.

### Early Buy-In

Reaching a diverse student body was the most important part of our Darwin Day celebration. We quickly realized we needed early buy-in to build a broad base of collaborators through which to appeal to that diverse student body and to secure funding. We found collaborations through cold emails to nearly every department and student group at the university. In these messages we explained what Darwin Day was, why we thought GVSU should host one and the various celebratory events we had in mind. We were met with an even mix of ‘We love the idea but are stretched thin’ and ‘We love it! How can we help?’ Predictably, the more departments and faculty involved, the further the word would spread beyond typical STEM students.

The lesson was to contact anyone and everyone. We were able to garner financial support from a variety of departments whose interest in evolution was a surprise even to us. We also received support from expected sources, such as the

library and the Dean of Arts and Sciences. Student Senate allocated a large amount of money for bringing in the keynote speaker and catering. Although catering was the most expensive budget item, it encouraged attendance—people love free food.

### Tailor the Event to Your Institution

Since GVSU students are primarily geared toward the allied health professions, we invited Dr. Wenda Trevathan to give the keynote address. Dr. Trevathan is an anthropologist who specializes in evolutionary medicine, which was chosen as an important topic that could help students recognize the applicability of evolution to their intended career paths. Inviting a biological anthropologist also enabled us to highlight human evolution using a framework (health sciences) that was familiar and inherently interesting to the intended audience.

The keynote presentation was followed by “lightning talks” (research talks limited to 5 minutes and 5 PowerPoint slides), presented by students and faculty across campus representing departments such as biology, art history, philosophy, and psychology, among others. These short-format presentations provide an opportunity for undergraduate students to gain public speaking experience and discuss their work with their peers and faculty members. More details can be found at <https://www.gvsu.edu/darwinday/>.

We also organized four casual events with public appeal that incorporated evolutionary topics and made the concepts accessible to everyone. These included (1) lab-walkthroughs, which consisted of different departments setting up interactive table displays demonstrating evolutionary theory in their own field; (2) a comedy improv show developed by a local troupe that incorporated evolutionary themes; (3) a screening of the original *Jurassic Park* followed by a panel discussion including GVSU faculty members with biology, paleontology, and genetics backgrounds; and (4) an “Endless Forms Most Beautiful” art exhibit. This exhibition epitomized the intended interdisciplinarity of Darwin Day. We had submissions by artists and scientists, highlighting the art in science and science in art. Through the focus on the applicability of evolution in medicine and the wide variety of events we offered, we were able to reach a broad range of students, faculty, and community members.

### Incorporate Preexisting Programs: Science on Tap

Finally, we were able to reach a larger portion of the non-university community by holding a special Darwin Day edition of Science on Tap<sup>2</sup>. A Science on Tap was started in Grand Rapids the previous year to provide the opportunity for conversation, debate, and interaction between scientists and the public at a local bar. By pairing Darwin Day with Science on Tap, we were able to better connect with the greater community using accessible and engaging approaches.

We brought in an expert on mammalian evolution to give a presentation. The

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<sup>2</sup>Science on Tap events are science lectures that are generally held in a space where alcohol is available. Like Darwin Day, Science on Tap is a themed event around science and the public that has become popular and been replicated around the world.

evening included a trivia game, “Guess the Marsupial!” during which audience members were presented with two animal pictures, and had to decide which was the marsupial. The restaurant owner made two signature cocktails for the night: “The Orange-Gin of Species” and the “HMS Beagle.” Science and libations make excellent bedfellows. A life-size cutout of Charles Darwin with birthday paraphernalia was also on hand for interactive pictures.

Using this established event with a strong following enabled the Darwin Day planning committee to directly address one of the main goals of Darwin Day—to raise interest among the community in evolution and how it impacts everyone. The enormous turnout—standing room-only in a 170 person capacity bar—at this Darwin Day edition of Science on Tap was a testament to community desire for more science public outreach. Opportunities to spark interest in evolution should not remain behind the walls of academia. To truly stimulate change in the acceptance and dissemination of evolutionary theory, we have to branch out to the greater community through accessible and engaging approaches.

### **Perspective 2: Liberal Arts University (University of North Carolina Wilmington)**

The University of North Carolina Wilmington (UNCW) is a liberal arts institution located on the southeastern coastline of North Carolina. UNCW is primarily focused on undergraduate education with a few PhD programs. Recent transitions at the university have resulted in an increased research emphasis. As a result, there is greater urgency to utilize experiential learning to develop undergraduate scholars with an interdisciplinary STEM perspective. The goal of UNCW’s Darwin Day is to creatively bridge STEM and non-STEM disciplines through the theme of micro- and macroevolution. We are particularly interested in engaging students who consider themselves as “non-science” and help them cultivate their interest in STEM by developing an entry point into human evolution through anthropology.

In 2009, UNCW celebrated the 150<sup>th</sup> anniversary of the *Origin of Species* with a yearlong event that included speakers and other on-campus events. This provided an important framework when we launched an annual Darwin Day event in 2015. We started small and celebrated our first Darwin Day by screening the 2009 Charles Darwin biopic *Creation*. Following the movie, we hosted an interdisciplinary panel that included a history of science scholar, a biologist, and biological anthropologists.

The movie and related panel provided a platform to correct misinformation and discuss cross-disciplinary use of natural selection and our shared interest in human evolution. It was also an excellent forum for highlighting misconceptions of human evolution and changing levels of acceptance through a multidisciplinary lens. This dialogue between faculty and students had a very different tone than that of a classroom. For instance, when a student shyly asked if we had favorite animals, several of the panelists got really excited and started showing off their animal tattoos. Most of the students earned extra credit for being in attendance, and faculty had the opportunity to recruit students to their upcoming evolution-themed courses.

Bolstered by student enthusiasm and a drive to connect the university as a learning community, we attempted a more ambitious Darwin Day celebration the



following year. We conducted three major events for Darwin Day in 2016, including a scavenger hunt, Cranium™-style game<sup>3</sup>, and Darwin lookalike contest. The goal of this event was to encourage students to engage physically and electronically (for instance using websites to answer questions), with disciplines associated with evolution across the UNCW campus.

The UNCW scavenger hunt was launched a week before Darwin Day and encompassed clues associated with collections around campus. It also included questions that incorporate the humanities (e.g., “What was the most popular piece of music in England the year that Darwin’s *Origin of Species* was published”). Our goal was for students to be able to recognize shared relevance of evolution across the university and beyond their majors. Everyone who completed a scavenger hunt received a Darwin-themed pin, and the winners were awarded prizes at the main Darwin Day event. The scavenger hunt was posted online, open to all UNCW students, and ultimately completed by over 20 individuals.

The scavenger hunt was enjoyable for students who participated but it would need to be modified to be successful in the future. We made the mistake of stating that the winning team would be the group that *completed* the scavenger hunt first. This resulted in an excited scramble when it was first released, but once the first one was turned in, the enthusiasm dropped among students who thought they could not win. However, many students who turned it in early did not complete it or provide the correct answers. In the future we will address this by entering all completed scavenger hunts in a raffle for prizes.

In addition to the scavenger hunt, we held a large on-campus event where 4-6 interdepartmental teams of students competed in a lighthearted Darwin-themed version of Cranium™. Questions were developed with participating faculty to be interdisciplinary in nature and play to team member’s strengths. The goal was to model interdisciplinary collaboration at the undergraduate level. Faculty members and graduate students participated by introducing their work and respective departments and took turns asking the teams prepared questions during the game, reinforcing the interdisciplinary nature of the event. We distinguished Cranium™ teams with different colored *leis*, which increased the sense of community while setting a playful, relaxed tone. Winners received plastic pith helmets from a party supply store and other assorted evolution-themed goods.

Attendees were also encouraged to participate in the Darwin-Lookalike contest, which broadly encompassed beards fashioned out of twigs, people with “finch” head pieces, individuals dressed as their favorite animals and plants, and even evolutionary events (the evolution of angiosperms made an appearance). We had over 100 attendees at this event and had to usher enthusiastic students out of the room an hour after the event finished.

In 2017, we further modified the event by seeking funding and participation early within the university and broader community. We actively pursued participation from a variety of disciplines associated with evolution to increase the interdisciplinarity of the events. We utilized the largest lecture hall on campus and

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<sup>3</sup> Cranium™ (Hasbro 2017) is a party game in which players must complete activities that its designers suggest test the “whole brain.” The game has activities related to creativity, trivia, word play, and performance. It is comparable to similar games like Pictionary, Charades, Trivial Pursuit, and others (<https://boardgamegeek.com/boardgame/891/cranium>).

hosted 12 speakers from 9 different departments (Anthropology, English, Biology and Marine Biology, Communication Studies, Earth and Ocean Sciences, History, Psychology, Music, Philosophy and Religion). As in previous years, we set the tone for the event in the event's foyer with free food, including some remarkable Darwinian-themed cupcakes donated by a community member (Figure 3). We had a heavily-utilized evolution photo booth, complete with neon-colored dinosaur backdrop and accessories that ranged from lemur ears, flowered hats, feather boas, peacock masks, pit helmets, GBLT pride flags, and a cardboard cutout of Darwin.

**Figure 3.** Evolution-themed cupcakes donated for UNCW's 2017 Darwin Day.



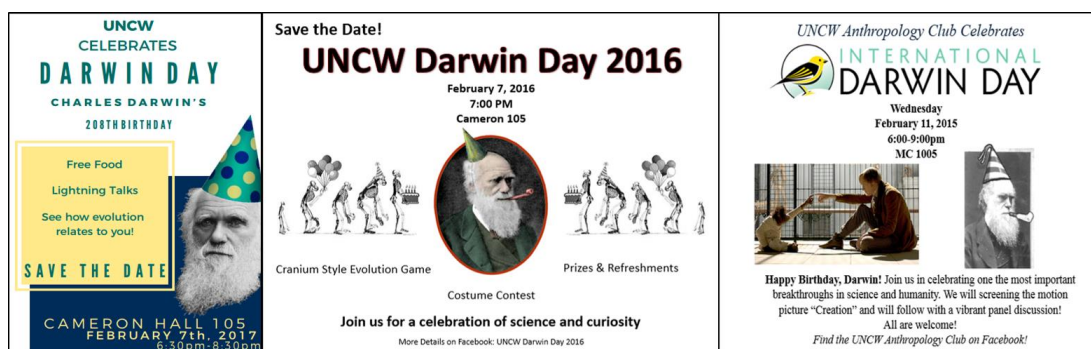
To educate attendees, we invited participants to give 5-minute “lightning talks” that connected their discipline or research to evolution. To increase student engagement between each talk, we posted a multiple choice trivia question. Students were encouraged to develop creative trivia team names. Team responses were collected after every round and tallied for final prizes. We revealed the answers at the end of the event. This event provided a diversity of viewpoints and epitomized the spirit of the event. This approach created a low-risk interdisciplinary event that achieved the a priori goal of engaging non-science majors. Overall, we had 150 students and faculty members in attendance.

We have made several modifications over three years at UNCW to increase the success of the programming, including involving more students and faculty members across myriad disciplines. All of UNCW's Darwin Day events have been successful. However, balancing the service load of organizing and hosting a large event while teaching and fulfilling other obligations has taught us some important lessons. Academic service is valued and critical to university and college life—and important to the development of us as well-rounded faculty—but it can become overwhelming if certain logistics are not addressed up front. These include marketing outreach, collaborations, early buy-in, and prizes.

## Marketing Mavens

As noted regarding GVSU's Darwin Day events, two of the most important components of a successful event are excellent advertising and tailoring the event to the community it is meant to reach. Recognizing our financial and time limitations, we initiated a collaboration of an upper-level undergraduate marketing class in the UNCW Department of Communication Studies. Students in this course spent the semester prior to Darwin Day developing strategies to make the event sustainable. They branded the event, conducted market and product analysis, and determined a media strategy that included print, radio, and web ads. Students in the course helped design save-the-date materials for the birthday party and data-mined contact information for potential collaborators across the university (for examples see Figure 4). We got invaluable event support, while the Communication Studies student got marketing experience. Furthermore, this enhanced interdisciplinary interactions across the university for all of us.

**Figure 4.** Examples of UNCW Darwin Day posters 2015-2017.



## Collaborations and Early Buy-In

Like GVSU, we encouraged collaborations and early buy-in by sending out the 'save-the-dates' invitations to Darwin's birthday party, and asking faculty to put the event on their syllabi and to offer extra credit for attending. Furthermore, we enlisted the support of related university clubs (Geology, Biology, and Anthropology) to build enthusiasm for Darwin Day. The UNCW Anthropology Club co-hosted the day of the event, welcoming people as they arrived and encouraging them to use the Darwin photo booth and enjoy the food. In future events, we will provide handouts to attendees that list evolution-themed courses offered by presenters and take better advantage of local and university news outlets (video, online, and print media).

## Evolutionary Bling

Just as food helps encourage attendance, event swag helps spread word about events, encourages new attendees, and creates opportunities for relaxed conversations (not belabored by theory). Our prizes consisted of the graphic novel

version of *Origin of Species*, mugs with evolution themes, stickers, pins, and dollar-store trinkets that fit the theme (who doesn't love a temporary dinosaur tattoo?). We assembled these in dinosaur-themed birthday party gift bags. We assembled gift bags that also included Darwin Day buttons for each of the presenters and contest winner. We have seen stickers from previous events on student computers across campus, and the buttons travel around the campus on backpacks. These promotional items are low-cost advertising for both the event and accessibility of evolutionary education. Students have reported that this "evolutionary bling" has inspired others to engage them in casual conversation about evolution across campus. Such interactions have the potential to open minds in ways where more heavy-handed efforts focused on intellectualization or confrontations often fail.

### Perspective 3: Flagship Public Research University (University of Alabama)

The University of Alabama (UA) is the flagship public research university for the state of Alabama. Located in Tuscaloosa, UA focuses on the education of undergraduate and graduate students alike. UA has several linked evolution programs, including a minor in and student club for Evolutionary Studies (EvoS), a university-wide lecture series, and a Natural History Museum that owns a paleontology field station, among other things. Beginning in 2013, we tasked undergraduate students in UA's EvoS program to begin a Darwin Day Research Colloquium.<sup>4</sup> UA's Darwin Day is organized and hosted exclusively by EvoS Club students with only faculty guidance and formed the basis for hosting a regional evolution conference in 2016. This approach was inspired by seeing the level of student involvement in conference programming by New Paltz EvoS undergraduates at the 2012 EvoS Summit.

UA's first Darwin Day Research Colloquium featured presentations and posters from students, locals, and professionals from across the state, including a keynote talk by a psychologist from another nearby college. This Colloquium was inclusive of numerous evolutionary perspectives and disciplines, including biology, paleontology, geology, psychology, biological anthropology, English, and history. In the second year (2014), we invited K-12 students to participate in the Colloquium and had two elementary students present posters on Darwin as an icon (by making a collage of pictures of Darwin from the internet) and tool use as an adaptation (Figure 5).

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<sup>4</sup>The EvoS program is worldwide, ranging from committees of faculty interested in evolution to an accredited minor in Evolutionary Studies. The EvoS program at UA is an interdisciplinary minor and student-led club housed in the Department of Anthropology and directed and advised by Lynn.

**Figure 5.** Local 6<sup>th</sup> grader presenting evolution poster at UA's 2014 Darwin Day Research Colloquium.



As the programs at GVSU and UNCW make clear, a half-day event of faculty and student presentations, activities, and Darwin-centric discussion provides a low-stakes opportunity for students to sample this information. Starting a Darwin Day event might seem like overkill for a school with an EvoS program. However, since there are new members of a university or college town every year, what may seem repetitious for those teaching evolution and hosting events often remains novel and profound for students and other community members. Most students arriving at UA and similar college campuses have no background in evolution and few opportunities to get exposure (Schrein, 2017). A 2014 study conducted at UA found that the majority of undergraduates who arrive have already decided whether they will be inclined to take a course about evolution or not (Rissler et al., 2014). As a result, these students are unlikely to attend evolution-themed events unless joining friends, receiving extra credit, or exposed to the event through purposeful, creative marketing.

### Connecting with Students across Disciplines

The idea for a Darwin Day event at UA had been raised previously by Rissler, whose biology students hosted them in the past, but the 2013 Darwin Day Research Colloquium was the first one to be held by the relatively new EvoS Club. The EvoS Club had been organized within a year of the EvoS minor at UA to provide an avenue for involvement by students interested in evolutionary studies but who did not or could not enroll in the minor.

Interdisciplinarity requires more than encouraging students to take classes in different disciplines or drawing on multiple sources when teaching. Programs designed specifically to be interdisciplinary need synergistic activities and events to bring involved students and faculty together, where they can share ideas, get support, and feel a sense of involvement (Holley, 2009; Spaulding, Burch, & Lynn, 2014). Organizing and hosting the Darwin Day event gave the EvoS Club focus, and, while the membership waxes and wanes every year, it has been a consistent presence on our campus ever since. Our EvoS student organizers have cited the experience of organizing the Darwin Day Colloquium as among their most rewarding in college, despite and partially because of the frustration entailed in planning such events with little to no experience.

While some successful Darwin Day programs simply grow on their own campuses, we hosted three Darwin Day Research Colloquia before transitioning instead to a regional organization. In 2016, the students' Darwin Day planning experiences led to the development of the Southeastern Evolutionary Perspectives Society (SEEPS) and to hosting regional SEEPS conferences over Darwin Day weekend for two successive years.

### Developing Darwin Day Weekend

As with Darwin Day, the ethos of SEEPS is to simultaneously lighten and demystify evolution so everyone can recognize that they have a stake in evolution education, especially students and the local community, and to correct misconceptions about how evolution is interpreted and applied. The SEEPS model was based on the Northeastern Evolutionary Psychology Society (NEEPS) (Bear & Ashmont, 2012). NEEPS endeavors to promote an environment that is inclusive of all realms of evolutionary studies, as well as research that promotes creativity beyond standard conference papers. In so doing, we encourage those interested in attending SEEPS to be creative in their proposals, submitting presentations and workshops not commonly found at traditional conferences.

This has been a successful interdisciplinary regional conference that has included over 100 faculty and student participants from 26 schools, and a range of disciplines including geology, psychology, biology, education, paleontology, anthropology, performance, and multimedia art. Our conference features 2-3 days of presentations and workshops ranging from invited speakers, traditional 15-minute talks, 5-minute "lightning talks," and poster presentations to evolution-themed music videos, teacher-oriented workshops, and improvisational movement.

### Students Meeting Students: Taking it Off Campus

While the presentations promoted an atmosphere of discussion among students and professors, we wanted to ensure that the students had time to get to know one another and form valuable networking connections. We accomplished this two ways. First, we recruited student volunteers from multiple universities, and had local UA student volunteers house those from other institutions. Second, on the final day of the conference, we held student mixers at local breweries in which the undergraduate and graduate level students met for food and drinks (non-alcoholic for those still underage). Such somewhat forced interactions are critical to our goals of training and professionalizing students, creating synergistic activities to promote an interdisciplinary appreciation of evolutionary theory and applications, and building sustainable communities to advance evolutionary studies as an integrative and humanistic science.

### Conclusion

For science educators, evolution is the linchpin to promoting an understanding of biological sciences. Biological anthropology directly engages with human evolution and offers coursework focusing on this topic. As biological anthropologists, we have an opportunity to engage with students who typically think of themselves as 'non-science' and sign up for our classes in an attempt to avoid 'hard sciences.' Biological anthropology focuses on human evolution, so we have a responsibility to welcome them and help increase the science literacy within our communities. However, since Anthropology is the only discipline that regularly requires majors to take a course in evolution, what about the other students? Darwin Day events are fun, interdisciplinary programs that highlight the important conceptual role of evolution education across campuses with a goal of engaging non-science majors. The creative and 'branded' approach of Darwin Day is compelling for everyone and easier to advertise than alternative evolution education efforts. Darwin Day events provide non-threatening points of entry for people interested in the natural world but not well-versed in evolutionary principles or mechanisms.

Through this paper, we have provided suggestions regarding the creation of Darwin Day events (Table 2). We highlight the importance of collaborators, incorporating early buy-in, tailoring events to one's institution or community, collaborating with marketing programs on campus, and building off of pre-existing programs. Our Darwin Day and related events have been successful specifically because we incorporated these components. We found it especially useful to build on preexisting programs (Science on Tap and NEEPS) that were already actively involved in science outreach. Starting a Darwin Day event is not as difficult as sustaining one. We recommend starting small and building on elements that already exist, which enables one's team to focus energy on sustainability, getting faculty buy-in, and developing team members who can host future events when other team member priorities and resources shift.

**Table 2.** Darwin Days Events Discussed by the Authors.

|   |  |
|---|--|
| Keynote speaker                         | Cranium™-styled game                       |
| Lab walk-throughs                       | Scavenger hunt                             |
| Improvisational performance or movement | Free food                                  |
| Movie screening and panel               | Evolution photo booth                      |
| Art show                                | Research talks and poster presentations    |
| Science on Tap                          | Regional conference                        |
| Trivia                                  | Handouts of evolution course opportunities |
| Darwin-themed cocktails                 | Extra credit opportunities                 |
| Photos with life-sized Darwin cutout    | Costume contest                            |
| Readings from Darwin's works            | K-12 teacher workshops                     |
| Evolution-themed song parody contest    | Darwin's journey photo montage             |

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