The Human Body and Visual Art: Three Perspectives
Jenna Lee Stevens, Melissa Geist and Kimberly Winkle

ABSTRACT
In the spring of 2017, Professor Melissa Geist, Professor Kimberly Winkle, and Vice President of Student Affairs Mr. Marc Burnett co-instructed HONORS 4013-002: The Human Body and Visual Art, an interdisciplinary Honors Colloquium supported by the Tennessee Tech University EDGE QEP Grant for creative inquiry. The course employed a variety of art mediums and formats to explore anatomy and physiology through creating art. By challenging students to think critically and learn using multiple modalities, the course ultimately encouraged a deeper understanding of human anatomy and physiology and art.
The Human Body and Visual Art

Students intending to graduate in cursum honorum take up to two Honors Colloquia, interdisciplinary courses designed exclusively for Honors students by Tennessee Tech faculty. Offering thought-provoking topics that vary each semester, Colloquia challenge students to open their minds beyond the scope of their majors. In the spring of 2017, twenty students from diverse backgrounds joined in pushing the boundaries of their comfort zones; they enrolled in what one might argue to be the most unique Colloquium offered yet: HONORS 4013-002 The Human Body and Visual Art.

Dr. Melissa Geist, Professor of Nursing and member of the Tennessee Tech Board of Trustees; Professor Kimberly Winkle, the School of Art, Craft, and Design Director; and Mr. Marc Burnett, the Vice President of Student Affairs, team-taught The Human Body and Visual Art. Collaboratively, they designed the Colloquia to facilitate creative thinking and problem solving, as well as imaginative design, for Honors students of any major, not only those in healthcare or art. The course employed a variety of art mediums and formats to explore anatomy and physiology through creating art. By challenging students to think critically and learn using multiple modalities, the course ultimately encouraged a deeper understanding of human anatomy and physiology. As part of Tennessee Tech’s Quality Enhancement Plan (QEP), the Enhanced Discovery through Guided Exploration (EDGE) Grant supported this course for creative inquiry.

This once-a-week class worked in cycles. First, Dr. Geist taught a new anatomical system, although these meetings were far from an ordinary lecture-style class. In fact, Dr. Geist surprised students during their first lesson with cow hearts to examine and dissect for a closer look at the cardiac system. For the respiratory system, students inspected pig lungs, one black from cigarette exposure and the other healthy, and observed as special equipment caused the lungs to “breathe” to exemplify the damaging effects of smoking. Using virtual reality simulators in the Tennessee Tech Library’s iCube, students explored the chambers of the heart and travelled through the respiratory system as a molecule of oxygen. During the second week of a given system, Prof. Winkle and Mr. Burnett taught students new art techniques and vocabulary. Their diverse perspectives as a trained artist and self-taught artist, respectively, were both inspiring and useful in finding one’s own, unique artistic styles. Students gained exposure to a variety of mediums, including water-color pencils and water-soluble pastels on cold press paper, collage, acrylic on canvas, and mixed media. In the final week of a system, students submitted a written analysis and all convened for a formal critique, presenting on both how the individual completed artworks communicate a concept from the assigned anatomical system and the visual elements and principles of design employed in its creation. This cycle was repeated four times to cover the cardiac system, respiratory system, renal system, and endocrine system. The semester culminated with a student exhibition in the Joan Derry-berry Art Gallery, during which friends and family joined for student led final presentations of their favorite artwork created during the semester long inquiry.

Jenna Lee Stevens’ Perspective: Student

As an accounting major, I have a very analytical mind. The anatomy and physiology concepts came relatively easy to me, but learning to apply this material in a creative way required me to challenge my traditional method of thought. For each system, I dedicated significant time to brainstorming how I might apply various concepts, processes, or aspects of my personal life to Dr. Geist’s anatomy and physiology lesson and then how to construct a visual representation that effectively communicates this correlation. Actively engaging both the left and right brain way of thought allowed me to analyze in a more creative and perceptive manner than ever before. As the semester progressed, I grew more comfortable finding an expressed relationship between anatomy and physiology and art, and I discovered that this creative method of problem solving ultimately gave me a deeper understanding of the anatomy and physiology concepts. I turned my ideas from this unique critical thinking process into preliminary sketches, which often inspired new ideas and further brainstorming. After receiving constructive feedback on my sketches from the three instructors and learning new techniques for the assigned medium and format, I finally began the art making process, allowing my creative side to take over. In the days leading to the formal critique, I carefully crafted my artwork, of which an example is seen in Figure 1. In this work, entitled Endocrine System, I was expressing the power and beauty of the female endocrine system. Through use of color, symbolism, iconography and scale, I was able to not only communicate my belief in women’s reproductive rights but also capture the magnificence and magnitude of the specific anatomical system. The work of both an artist and a surgeon requires patience and a steady hand, as Mr. Burnett once suggested, which I certainly found to be true in creating my art. The formal critique was an engrossing and special process. In addition to the satisfaction of sharing my own art on which I worked tirelessly, my classmates’ insights and artistic abilities always captivated me, especially considering many of us did not have prior experience with either art or anatomy and physiology.
I am immensely thankful for this Honors Colloquia, as it is undoubtedly the most fascinating, enriching course I have had the pleasure of taking here at Tennessee Tech. Dr. Geist, Prof. Winkle, and Mr. Burnett offered ample amounts of motivation throughout the semester and established a welcoming, positive classroom environment that allowed us to feel comfortable sharing personal aspects of our lives in our artwork. This class served as both an academic challenge and an outlet for self-expression. It challenged me to use critical thinking to apply scientific concepts to art and then effectively communicate how my visual representation expresses some aspect of an anatomical system while using proper art terminology. I looked forward to this class each week and enjoyed learning to analyze in a new, compelling way.

Dr. Geist's Perspective: Nursing

The challenge for the course designers (Prof. Kimberly Winkle, Mr. Marc Burnett, and Dr. Melissa Geist) was to build a course to engage students from diverse majors (Accounting, Elementary Education, Biochemistry, and Music plus more) with complex topics for which they did not have any foundational knowledge. From an outsider's view it might seem impossible or even "silly" to bring together anatomy and physiology with art in a cross-disciplinary class, but when we pitched the idea to Dr. Rita Barnes and the Honors Council, they immediately saw the value of such a pairing. Four main factors led to the success of the course.

1. The faculty members’ genuine interest to learn from each other
2. A clear pedagogical structure that allowed students to fail safely
3. Formative peer review and collaboration that encouraged students to tap into one another's strengths for the success of all
4. Fostering student buy-in with an art gallery exhibition requiring them to demonstrate a deep understanding of science and art

One of the best aspects of this course was spending time watching incredibly talented individuals teach subjects for which they are so passionate. Each class period, dedicated to a different art medium, provided a new learning experience for me. I knew very little about the different artistic mediums introduced in the course (watercolor, acrylic paints, pencil, collage, etc.) and I, along with the students, learned how to push fears and inhibitions aside as we delved into each new visual artistic style. Critiquing art was also new to most students in the class. Professor Winkle developed a guide for peer critique that prompted all of us to look beyond the "I like it" surface treatment of works of art. Throughout the semester we heard non-art majors discussing focal point, use of line, shape and texture, color scheme, and context, and we now all possess a more disciplined and knowledgeable approach to viewing art.

Because the faculty understood that the students in the course possessed different types of background knowledge, formative assessments were built into the class to provide ongoing feedback from peers and faculty. For example, the students took an anatomy and physiology quiz for each body system (cardiac, respiratory, renal, endocrine, etc.) covered in class. The students first took the quiz individually, and then they were placed in pairs, with one person in each pair having completed coursework in anatomy and physiology. The two students compared answers and, using a different color of ink, changed their responses if necessary. This approach decreased anxiety for students who were apprehensive about the science in the course. There was similar support for the visual art content of the class. The students engaged in small group peer review of their artistic creations before the required presentation to the entire class.

The pinnacle of the course was an art exhibit beautifully curated by students and Prof. Winkle. During the exhibition, each student picked one of their creations from the semester and discussed the artistic merits of the piece as well as the anatomy and physiology related to the design. It is hard to capture the magic of that evening adequately. The students’ presentations were imaginative, deeply personal, and scientifically on point.
The Human Anatomy and Visual Art class represents the best of what is possible when dedicated faculty, talented students, and a supportive academic structure come together to push the boundaries of traditional college experiences.

**Professor Winkle’s Perspective: Art**

As a firm believer in the creative inquiry learning model, I was excited to have the opportunity to implement it in a unique course offering, which combined two disparate academic disciplines: Anatomy and Art. While the disciplines are quite distinct, the ability to explore problem solving through divergent and convergent means is useful to all disciplines. It is this mode of thinking that we encouraged and students employed as they learned about human anatomy and art. The honors colloquia course was populated by students from all disciplines, which provided wonderfully diverse perspectives and responses to the problems that were posed. However, the unifying element was their genuine enthusiasm and acceptance of the course and subject matter. Initially, I wasn’t sure how receptive or serious students would be to the art-making process. Often people who have little experience with art may not understand or appreciate the challenge of creating compelling works of art. Some may have the opinion that art should be “pretty” and “pleasant” and not realize or accept that art can exist in any form or style and that its creation is time consuming and tedious. While I was quite pleased by how fully students embraced the art-making process, what is more important and satisfying is how well they explored the idea-tion process of seeking and finding connections between the anatomical systems and visual expression. Students were not tasked with creating direct anatomical models, which doesn’t encourage abstract thinking and exploration. Instead, they were pushed to see beyond the expected representation by gaining a deeper understanding of the system: how it works, where it resides, what it affects, etc. Through this understanding, students were able to connect aspects of the anatomical system to larger concepts of which they represented through a variety of artistic mediums. For instance, Muzakhir Amanzholov’s artwork (Figure 2) represents the cardiac system. In his explanation of the work, he cited the relationship of the cardiac system to an engine, which requires efficiency, proper timing and interdependence amongst parts. His representation is a stylized heart, which includes various mechanical elements to re-contextualize the function from biological to mechanical. His use of color is symbolic, representing oxygenated and deoxygenated blood and his use of line suggests not only arteries but also the interconnectedness requisite of both a functioning heart and a motor. In order to create this artwork, Muzakhir needed an acute understanding of the anatomical system. He needed to know much more than how a heart appears, but also how it functions, why it functions and what its function supports. Through this understanding, he was able to synthesize these concepts into his compelling work of art. All twenty of our students (Figure 3) engaged weekly in this rigorous endeavor, inspired first by Dr. Geist’s experiential teaching methods, then with brainstorming, research and sketching, then artwork creation and finally the project critique and analysis. Through this creative inquiry process, I am confident that students gained a much deeper and thorough understanding of anatomy and developed a heightened appreciation of art.

This course was a joy to teach; I enjoyed the challenge of creating a unique course with my colleagues and I learned a lot from my colleagues and our students in the process of implementing it. I am grateful for the opportunity and the support to be able to collaborate with colleagues across campus to provide unique, valuable and, sometimes unusual, learning experiences for our students.

Figure 2. Cardiac System, watercolor on paper, 18” x 24”, Muzakhir Amanzholov, 2017.

**Conclusion**

The Human Body and Visual Art offered a unique academic experience and opportunity to open one’s mind to subject matter which might otherwise be absent in one’s chosen field of study, ultimately contributing to a well-rounded collegiate career. It is truly remarkable what a classroom full of diverse majors and backgrounds can accomplish in a semester with the right guidance and inspiration.
Figure 3. Students and faculty in Human Anatomy and Art, 2017