College of Natural Resources and Environment

Wood Enterprise Institute
2014-15 Student Cohort

A student-run entrepreneurial venture embracing experiential learning at the highest level
A Letter from the Dean

The Wood Enterprise Institute is a signature program in the College of Natural Resources and Environment. Offered in our Department of Sustainable Biomaterials, the institute is elevating the educational experience for students to a new level. Focused on those attributes and skills we refer to as higher order learning — critical thinking, problem solving, entrepreneurship, and innovation and creativity — the real-world experience the institute provides enhances our college’s strong science and technology-oriented curriculum.

The Wood Enterprise Institute is offered as a two-semester sequence during the academic year. The institute’s concept-to-market business approach has introduced our students to the real world of business planning, design, manufacturing, sales, distribution, and overall business performance. Working in teams is a key necessity of the institute. The end-of-year presentations are some of the very best I have witnessed from students on campus. At times during these presentations you would think you were seated in front a group of young business executives.

Under the direction and leadership of Professor Earl Kline, the institute is preparing students to make a quick impact in their professions. Students have told me that the Wood Enterprise Institute was not necessarily the hardest course they have taken at Virginia Tech, but it may have been the most mentally challenging. This is the course they are thinking about in the off hours, the course that wakes them up at night when seeking creative solutions to a manufacturing problem, a team problem, or a sales problem. This is the course they can’t wait to get to.

I know we are on the right path with the Wood Enterprise Institute. These students are gaining valuable experiences that can’t be offered in a traditional classroom setting. Students who have participated in the institute offer future employers knowledge of real-world problems and challenges, but also the skill set needed to find creative solutions and solve problems. These students will make an immediate impact in the workplace.

I hope you enjoy reading about the Wood Enterprise Institute and our successful experiential learning environment for our students.

Warm regards,

Paul M. Winistorfer
Dean

“These students are gaining valuable experiences that can’t be offered in a traditional classroom setting.”
A Letter from the Faculty Advisor

This marks the eighth year of the Wood Enterprise Institute (WEI) at Virginia Tech. The mission of the WEI is to create value by providing “hands-on” learning that only comes by leading and managing real day-to-day production business operations.

During the fall semester, the WEI team works together to develop their business plan. This plan carefully lays out all of the market research, product design specifications, operations, cost assumptions, and various contingencies because the team is required to successfully demonstrate in the spring semester that the plan actually works. The score, in terms of business and financial metrics, is kept in the spring to show how well operations progress according to the plan.

The spring semester is always challenging because the students set very high expectations in the fall. They soon learn that no matter how carefully detailed their plan was, there are so many “little” things that can get in the way of delivering according to the plan. How the team responds to the many challenges that get in the way is where the true entrepreneurial learning occurs! In essence, the WEI business acts as a laboratory that provides many learning opportunities whereby students can practice a rigorous problem-solving method to find and apply knowledge in ways to adapt and improve the business. This learning experience is invaluable for students who will soon have to make business decisions in the organizations they will lead someday.

This year’s team builds upon a strong foundation left by previous teams. The bar continues to be raised in terms of organizational capability and value focus. Rather than reinventing a business from scratch, previous student teams are becoming very effective at documenting what they have learned in the form of standard work procedures. This year’s team can study past standard work procedures and learn from previous experiences to help get their adaptation of the business up and running as quickly as possible.

Many special thanks go to the individuals and sponsors for their gracious donations of money, time, and materials toward creating a lab that allows students to develop an understanding that goes well beyond books and theory. Most of all, I thank the students for their serious attitude and professionalism toward the WEI. Such a professional attitude allows students to take ownership and responsibility in managing their own learning experience. When students take on such ownership, it makes it easy for them to meet and surpass my expectations. As always, I find that the students teach me a thing or two!

Thanks to all who support us!
For the past 25 years, my focus has been on teaching and mentoring students at Virginia Tech for the next generation of wood products business managers and leaders. I currently teach courses in computer control systems, forest products manufacturing, lean manufacturing, production operations management, and systems engineering design principles. I have been involved in research and development in the areas of industrial engineering and process control technologies to improve wood products manufacturing facilities. My work in this area has garnered several papers and one patent for the development and application of new automation technologies, such as machine vision and computer-integrated manufacturing to optimize manufacturing systems.

My upbringing began with a Greek mother and American father on our family dairy farm in Manassas, Virginia. Farming was very hard work and it convinced me that I needed to go to college and find an easier career. Receiving my B.S. in engineering led to my current interests in teaching and research at Virginia Tech. Aside from teaching and research, I love to cook and eat Greek food, and I receive constant advice on how to improve my cooking when I return to my family home. Mountain biking and snowboarding are my two favorite extracurricular activities, which keep me sane and help keep in check my insatiable craving for home-cooked food.
Jackson Beck
jhbeck93@vt.edu

Hometown: Flowery Branch, Georgia
Expected Graduation Date: December 2015
Major: Sustainable Biomaterials

I am a senior at Virginia Tech majoring in sustainable biomaterials with a concentration in residential wood structures. I have always loved crafting, and I achieve the greatest satisfaction when looking at a completed project and knowing that I had an integral part in its creation. Therefore, when I discovered the Department of Sustainable Biomaterials I felt right at home. The experience I am gaining in the classroom and through my internship with Huber Engineered Woods has greatly supplemented the knowledge I have gained building personal projects. I look forward to implementing my newly developed skills in any way I can as an upperclassman and in a professional environment.

Nadia Colquiett
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Hometown: Hampton, Virginia
Expected Graduation Date: May 2016
Major: Interior Design
Minor: Sustainable Natural Environments

I have always been interested in and appreciated the almost infinite uses of natural resources. In my college career, I had trouble finding a way to reflect that in my education. After a thorough look through the minors offered at Virginia Tech, I discovered sustainable natural environments. Not only is this minor relevant to design in general and its movement towards sustainability, but it has allowed me to more fully explore what I enjoy about the environment. I feel very strongly that being a part of this course is essential to further understanding the business side of designing a product and implementing it in the marketplace. This experience will undoubtedly help me develop unique skills that will give me a professional edge in the workplace while fulfilling my interests of user-centered design, problem solving, and sustainable thinking.
Brian Davidson

I originally chose Virginia Tech for its aerospace engineering program. I found myself struggling to remain interested in the material, so I switched to computer science only to find the same problem. A career advisor pointed me in the direction of packaging systems and design, and I have been in love with it ever since. The class sizes are small and the teachers are passionate about the material. As a bonus I get to use what I learned in my previous major to lend a unique perspective to projects.

My hobbies include hiking, biking, ultimate Frisbee, and, every once in a while, picking up a trumpet or sitting down at a piano.

Jordan Di Palma

Growing up an hour away from Blacksburg with a mother who is a Hokie, I always knew Virginia Tech was in my future. What I did not anticipate was how much the phrase “natural resources” would come to matter in my life. After being denied acceptance to the College of Engineering, I started wondering if I was heading the right direction or if I would ever attend Virginia Tech. At that time my mother met a former faculty member from the Department of Wood Science and Forest Products who quickly pointed me to his old department, assuring me that the residential wood structures option would be perfect for me.

Nearly four years later I know that faculty member was right. In the Department of Sustainable Biomaterials, as it is now known, I have discovered a fantastic opportunity for my future and am incredibly excited for what is to come. I am especially looking forward to what awaits me as part of the Wood Enterprise Institute. In high school I had the opportunity to work on my school’s art and literary magazine all four years, serving as editor-in-chief during my senior year. The collaboration and teamwork involved in that magazine is an experience I hope to make use of while working together this year. I cannot wait to help my teammates create the best product we can.
Ryan Farmer

I chose to attend Virginia Tech because it’s a well-respected school and presented a lot of opportunities. I transferred from engineering to sustainable biomaterials after I found out how much better it fit my personality. I chose to focus on the residential wood structures option, as the various aspects of residential housing have always been an interest of mine. I have always been passionate about the outdoors and love working with my hands, whether I’m rebuilding engines or working on a variety of woodworking projects. My internship experience in a lumber and kiln drying yard as well as classes and projects have helped me develop my knowledge of wood science.

Valuable business skills can be learned through the Wood Enterprise Institute, and I hope take full advantage of its unique approach to learning. The WEI puts a heavy focus on time and resource management and working as a team with your fellow students. This experience should provide us with a much better sense of how to run a business and every aspect involved in the process. I hope to be part of a successful business and final product.

Frank Gerloff

I came to Virginia Tech as an undecided student, but within a month of being here, I decided to pursue sustainable biomaterials as my degree. I was impressed with the professors’ hands-on mindset when approaching teaching, the small nature of the department, and the room for growth and job opportunities that the degree provided.

I see the Wood Enterprise Institute as a way to further my skills and understanding of how businesses function, respond to challenges, and succeed. I am greatly looking forward to “owning” this project and seeing the progression from concept to production to shipping. I have always had strong leadership and achieving skills, which have been further developed through my role as a resident advisor for the university. I hope to bring those skills to the team and develop them even more.

The Wood Enterprise Institute presents a very unique opportunity, and I hope that my classmates and I can utilize the resources provided and the skills and strengths of each individual team member to make this project as successful, if not more successful, as last year’s team. Regardless of the outcome, I am positive that this experience will equip me with new leadership, teamwork, and analytical skills, and provide a deeper knowledge of what it means to actually run a business.
Matthew C. Hopkins
mch2950@vt.edu
Hometown: Purcellville, Virginia
Expected Graduation Date: Fall 2017
Major: Building Construction

Matthew C. Hopkins
I was always curious about the construction business while growing up in Northern Virginia. After an internship in residential housing, I chose to major in building construction. Choosing the building construction path was one of the best decisions of my life. This past summer I completed an internship for Kiewit, a Fortune 500 construction company. I was an estimator for three weeks in Crystal City, Virginia, and was then moved to Maryland to work as an office engineer on a large-scale government project. By the end of summer I worked in a field engineer role on the project. I have been trained in multiple aspects in the field of construction, for example, how to process submittals and RFI’s (requests for information) for various projects. After my summer experience I feel confident that I can do any task that is put in front of me.

In the Wood Enterprise Institute, I would like to learn about the problem-solving processes of owning your own business. I have seen multiple people start their own business — some successful, some not so successful. Someday I may want to start my own business and I feel that this class will give me the tools I need to be successful.

J.P. Huard
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Hometown: Oak Hill, Virginia
Expected Graduation Date: Fall 2015
Major: Sustainable Biomaterials

J.P. Huard
I started out at Virginia Tech in electrical engineering, thinking it was what I wanted to do based on my past experiences with engineering and background in robotics, but it didn’t feel quite right. I looked into sustainable biomaterials when it was suggested to me as a potential better fit, and fell in love with the major. I’ve always been a better hands-on learner and been inclined to build things, so I have used that to my advantage with this major and look to develop my abilities further.

Outside of class time, I love being outdoors and learning about cars. Whether I’m on the disc golf course, camping, hanging out by the river, racing, working on one of my many vehicle projects (current count is five in-progress), or even just having a bonfire, you can rest assured I’m probably not sitting idly indoors.
Aaron Johnson

Coming to Virginia Tech from a town in central Virginia, I immediately realized I had to overcome the "small fish in a big pond" challenge that all incoming students face. I did this by changing majors from engineering to sustainable biomaterials the spring of my sophomore year. I was also an unusual case in that I transferred from civilian lifestyle to the Corps of Cadets during my junior year.

It has been a challenge for me to get through my college career, but I am happy looking back on how far I've come. Having to take an extra year to graduate afforded me the opportunity to obtain internships in two very different fields. I sharpened my CAD skills while working for an engineering firm and took over a project where I oversaw design, material acquisition, and construction of a 1-to-1-scale interior of an airplane for mockup. However, my internship with Atlanta Hardwoods proved to me that the wood products industry is where I belong. I gained experience organizing and managing warehouse operations, and learned about machine maintenance as well.

My Corp of Cadets career has allowed me to get real-world experience in leadership positions in which I have led squads of up to 10 cadets. It has given me a respect for managers in large-scale companies with hundreds of employees under them, and I hope to help others deal with challenges of leadership in this class.

Victoria Kellinger

I was born in Ashburn, Virginia, but spent most of my life in Chesterfield, a few hours away. I have always been a proud Hokie fan, as both of my parents graduated from Virginia Tech. It was an easy choice to come to Blacksburg, and it has turned out to be one of the best decisions I've ever made. From an early age, I knew that I enjoyed designing and building things. As I continued onto high school, my interests in woodworking surfaced, along with concerns about our environment. I tried a few different majors, but none truly stood out to me. During my sophomore year I heard about the sustainable biomaterials program and was immediately interested. I chose to follow the sustainable residential structures track, and since have been enjoying the great opportunities and experiences Virginia Tech has offered me.

In my experience with the Wood Enterprise Institute, I will become familiar with the process necessary to design, produce, promote, and sell a product. Most courses would have me learn these steps from a book. In the WEI, we are a company of classmates. We work together in a true business endeavor to accomplish our goal and to solve any problems that may arise. In the end, I hope to have achieved a thorough understanding of how to produce and sell a product successfully. These skills will further my professional capabilities and allow me to be successful, now and in the future.
Zack Link

I grew up in Blacksburg, which made coming to Virginia Tech an easy choice. I have always had a love for building and making things, which is what drew me to the forest products business option in sustainable biomaterials. After I graduate my goal is to work in the forest products industry as an industrial specialist, helping businesses become more efficient and implement new technology.

I was attracted to the hands-on style of learning offered by the WEI program. I expect that the WEI will give me experience in the problem-solving skills that can’t be taught in a traditional lecture class.

Phillip Nash

Growing up in the woods and understanding the process of collecting lumber has always been an influential part in my life. While working for foresters, I found myself not wanting to be in the woods my whole life, so I decided to go one step further in the process of refining lumber. When I was a senior in high school, I found information about wood science and it fit me perfectly. Virginia Tech was always the place I wanted to be. My whole family went to Virginia Tech, and football games have always been one of the family’s favorite past times.

The outdoors has always been a big part of my life, from fishing, hunting, and trapping to camping and hiking. Participation in many clubs, my fraternity, and other groups take up the rest of my free time.
Josh Pruett

My father attended Virginia Tech and in my upbringing I was bred to be a Hokie. I applied early decision to the engineering program and had no desire to apply to any other college. As I began my engineering journey I discovered the packaging systems and design program. The full-circle curriculum of design, sales, and intense real-world problem solving that packaging offered was exactly what I was looking for in a college experience. I value my experience of participating in real projects and research for clients and hope to take it out into the sales field upon graduation. In addition to my studies I am a part of the IOPP Chapter at Virginia Tech and a member of the Virginia Tech airsoft team.

John Reynolds

As a building construction student I am pursuing the technical side of the construction industry, which is also referred to as building information management. Having the understanding of how buildings are built, what materials are used, and how equipment is managed allows me to create an extremely accurate model of any construction project. Excelling in such a unique area allows me to manage a construction project in greater depth and accuracy. I currently am an ambassador for the building construction major, promoting the new changes and opportunities that are taking place within the college. The building construction program at Virginia Tech in a top-notch program that I am excited to be a part of.
Derek Robords

dro93@vt.edu

Hometown: Stuarts Draft, Virginia
Expected Graduation Date: May 2015
Major: Sustainable Biomaterials

I knew I wanted to come to Virginia Tech, but I had no idea what I wanted to do. I entered freshman year with the goal of engineering, but I didn’t know what specific field I wanted to focus in. I then learned about the Department of Sustainable Biomaterials when I took Dr. Loferski’s Introduction to Wood Science and Forest Products course.

My father owns a small construction company, and I have always been interested in woodworking and building. I fell in love with the department and officially transferred in the spring of my sophomore year. I couldn’t have asked for a more rewarding and all-around outstanding experience in this department.

Since joining the department, my woodworking skills have largely developed. Throughout my entire junior year, I assisted in the woodshop, milling and constructing various projects for the woodshop manager. I was placed as a lead on one of my father’s construction projects for a summer, completing all trim and interior finishing work on the Silverback Distillery in Afton, Virginia. I also build corn-hole boards in my free time.

Due to my experience with woodworking, I would like to be a leader in the production process in the Wood Enterprise Institute. I think this is the best fit for me on the team. I feel that by taking on this responsibility I could increase my own personal knowledge and skills while somewhat “coaching” other teammates in the production process and helping them develop their production management skills as well.

Smita Sharma

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Hometown: Oakton, Virginia
Expected Graduation Date: May 2016
Major: Sustainable Biomaterials
Minor: Green Engineering

I entered Virginia Tech as a biology major. During the winter of my sophomore year, I participated in the New Zealand Renewable Energy and Sustainability Study Abroad Program, which sparked my interest in natural resources and the environment. After doing research on various majors, I switched to the sustainable biomaterials program and added a minor in green engineering. I walked into classes excited to learn, and the small lecture size made it feasible to interact with students and professors. My grades improved dramatically and after one semester in the program, I received an internship with Atlanta Hardwoods. I gained first-hand experience in both production and business aspects of the forest products market. I am excited to apply this knowledge to help the WEI team overcome challenges and ultimately create a successful business. In the future I hope to incorporate my passion for the environment into the business world to demonstrate that companies can be sustainable, efficient, and prosperous.

In my free time I enjoy playing competitive soccer on the women’s club soccer team, hiking, and spending time outdoors. Much of my time is also devoted to serving as an intern for Virginia Tech’s Office of Energy and Sustainability and to Kappa Delta sorority.
Slater Wingate

I originally came to Virginia Tech in the mechanical engineering program with the intention to work in product development and research and development. I have since learned that mechanical engineering is not the major for me. I then learned about the Department of Sustainable Biomaterials as well as the industrial design minor and have spent the past year tailoring my academic experience toward the sustainable design world. I have great prototyping experience as well as computer modeling skills. I also love the outdoors and go on adventure trips whenever I can afford to.

Hometown: Baltimore, Maryland
Expected Graduation Date: May 2016
Major: Sustainable Biomaterials
Minor: Industrial Design
2014-15 Student Cohort – Front row (Left to right): Aaron Johnson, Smita Sharma, Victoria Kellinger, Nadia Colquitt
Middle row: Matthew Hopkins, Frank Gerloff, Jackson Beck, Phillip Nash, Josh Pruett, Zack Link
Back row: Slater Wingate, Ryan Farmer, Derek Robords, J.P. Huard, Brian Davidson, Jordan Di Palma, D. Earl Kline (Faculty Advisor)
Not pictured: John Reynolds

2013-14 Student Cohort - Front row (left to right): Jesse Outland, Stephanie Betzel, Liz Mills, Elizabeth (Liz) Williams
Back row: Seth Harrison, Matt Jensen, Chris Sickal, Geoff Meyer, Evan Friedman, D. Earl Kline (Faculty Advisor)
2012-13 Student Cohort - Front row (left to right): Andrew Corbin, Chris Moore, Michael Bauman, Robert Nagle, Mike Deck
Middle row: Gary Schneider, Zach Hathaway, Dylan Grosse, Roy Crews, Brandon Lane, D. Earl Kline (Faculty Advisor)
Back row: Russ Carr, Danny Hazelwood, Cole Burch, Jeremy Withers, Derek Richey, Adam Moring, Fleming Bors-Koefoed, Adam Lipella

2011-12 Student Cohort - Front row (left to right): Edmund Murray, Kyle Simmons, Joseph Patrick Smith, Nate Slemp, Kyra Schaeffer
Back row: D. Earl Kline (Faculty Advisor), Grant Vander Kolk, Jeffrey Dolan, D. Andrew Blevins, Josh Hertzler
2010-11 Student Cohort

Front row (left to right):
Scott McDonald
Matt Mohr
Jon Diamond
Jandir Santin Jr.
Andrew Bernard

Back row (left to right):
Shawn Crawford
Conan Cook
Will Rand
D. Earl Kline (Faculty Advisor)

2009-10 Student Cohort

Left to right: Dabney Beahm, Chris Rider, Kevin Roberts, Anthony Muscatello, Tyler Schloen, Nick D’Amico, Yoocheol Seok, D. Earl Kline (Faculty Advisor)
2008-09 Student Cohort

Front row (left to right):
- Tim Coplan
- Sarah Hutchinson
- Amy Jahnke
- D. Earl Kline (Faculty Advisor)

Back row (left to right):
- Matt Black
- Tim Stiess
- Gavin Wherry
- Dan Fore

2007-08 Student Cohort

Front row (left to right):
- Thomas Blount
- Wes Sanders
- Jesse Paris
- Mike Elebash
- Josh Hosen
- Rob Hart
- Daniel Roethle
- D. Earl Kline (Faculty Advisor)

Back row (left to right):
- John Foster
- Adam Birkett
- Kevin Eberling
- Becky Dawson
- Kevin Knight