



## Introducing Dr. Julie Jessop

Maggie Britton



Dr. Julie Jessop is the newest professor in the Dave C. Swalm School of Chemical Engineering. She earned her bachelor and doctorate at Michigan State University. She celebrated her twenty-fifth wedding anniversary with her husband this year, and they have three children. Mississippi State is very lucky to have Dr. Jessop as a new faculty member.

After attending Oakland University in Auburn Hills, Michigan for two years, Dr. Jessop transferred to Michigan State University to complete her undergraduate degree in Chemical Engineering. For this reason, she is easily able to empathize with her students who have transferred from another university.

Dr. Jessop always had a passion for teaching. She said that she would play school with her friends even as a young girl. Eventually, she found her passion in chemical engineering, and she knew to teach at a university she would have to earn a doctorate. Dr. Jessop jokingly

mentioned that her maiden name is Pepper and that she was hoping to earn her PhD and become Dr. Pepper. Since earning her PhD, Dr. Jessop has spent many years teaching the new generation of chemical engineers while working on her research, about which she is very passionate about.

After teaching and researching at University of Iowa for 18 years, Dr. Julie Jessop moved to Starkville, MS to serve as the Hunter Henry Endowed Chair in Chemical Engineering. Receiving this position is what brought her to Mississippi State University. She is very passionate about undergraduate education, and this position seemed unique to her because of how focused it is on the undergraduate education of chemical engineers. Dr. Jessop serves as the faculty advisor for the American Institute of Chemical Engineers (AIChE) at Mississippi State. She said how she was impressed by how active the chapter on campus is and how many opportunities are being created by the leaders for other chemical engineering students.

Research is a big part of why Dr. Jessop loves chemical engineering. She loves how math and chemistry can be applied to solve real-world problems. The focus of Dr. Jessop's research is polymers, specifically radiation-cured polymers. A familiar example of radiation-cured polymers is when you go to the dentist, and a blue light is shined in your mouth. They could either be adhering braces brackets onto teeth or making a filling. This process is called photopolymerization because the blue light acts as the radiation. The light starts the reaction to make the polymer material necessary for whatever is needed. Dr. Jessop has worked with dentists in the past to try to answer why fillings break from the tooth after being bonded.



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Another example of photopolymerization is nail gels, which are able to last for about a month, that are also cured under a light. Overall, her research is focused on understanding structure-processing-property relationships, which answer various questions about the properties of different polymers, such as the type of light needed to cure it, the amount of time spent under the light, or the predictability of the properties of a polymer such as hardness, glossiness, or thickness. Dr. Jessop explained that all of these are fundamental principles, but it is very practical because people in industry need to know it to be successful. Currently, she is working on a system in which the radiation is delivered by electron beams, but at this point, it is very much trial and error industrially. Through this research, it is hoped that it would be possible to specify exactly what form chemical structures and amount of radiation is necessary to create a very specific polymer.

When asked what motivates her at this stage in her career, Dr. Jessop reiterated how passionate she is about teaching undergraduate students. She hopes that her students can feel the same passion that she does about chemical engineering and the incredible practical applications that chemical engineering creates. Dr. Jessop emphasized that for her, it's about students as individuals. When she goes into her classrooms, her students are not just numbers. She knows who they are, and she wants to help them reach their goals - whatever they may be. She hopes that students will recognize that professors are people too and that there is so much more that goes on behind the scenes that students are not aware of such as research, writing, training new faculty, or serving in positions outside of the university. Dr. Jessop also stressed how, as chemical engineers,

it is important to give back to the community using the talents that we acquire during our time in higher education, such as STEM outreach for K-12 students.

In the future, Dr. Jessop plans to continue making opportunities for students. She sees herself heading towards an administration-type role that would give her other opportunities to help the chemical engineering program expand and excel. However, right now she is happy teaching and making a direct impact on future chemical engineers.