CLEMSON
MATHEMATICAL SCIENCES

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Members of the Undergraduate Awards Committee
Department of Mathematical Sciences
Clemson University
Clemson University

Dear Members of the Committee:

It is my distinct pleasure to nominate Ms. Sarah Kelly for a Clemson University undergraduate award in mathematical sciences. Ms. Kelly was in student in the Advanced Engineering Mathematics course I taught in Fall 2017. She had recently changed majors from computer engineering to mathematics, and she took this course to satisfy requirements for the applied mathematics concentration area. It is the only course where are students are exposed to material on partial differential equations, and the majority of students enrolled in the course are engineering students. Therefore, Sarah was exposed to discussions related to applications of the material and gained an awareness of the wide range of physical problem models using partial differential equations and associated expansion methods for piecewise continuous functions.

The general content of the Advanced Engineering Mathematics course includes information on Fourier series expansions of functions, on different types of Fourier series representations and manipulations, and on physical and mathematical models associated with the heat, wave, and Laplace equations. Students are expected to understand the connections between components of the physical and mathematical models as well as analytical solution methods for linear partial differential equations. In addition, they are expected to explain the agreement of the mathematical solution with the associated physical problem. Sarah is easily among the top 5% of students I have ever taught in this course over 15 years at Clemson. Her homework submissions and test submissions were almost perfect every time; she was consistently prepared for and participated in the course. The students had weekly homework assignments that were nontrivial; she never failed to complete and do well on them. Questions with subtleties that may have troubled other students were no problem for Sarah.

Sarah's current transcript will not include final grades in several senior-level courses, including abstract algebra, due to her recent change of major. However, I have no doubt whatsoever of her ability to complete these courses with outstanding grades. Notable on her current transcript should be the course load she took in Fall 2017, which included the introductory proofs course along with first semester analysis. I have been told she was an excellent student in both courses. In addition, Sarah has computational skills many of our majors lack. These additional computational skills make her an exceptionally qualified applied mathematician. She will necessarily have extensive coursework in an area outside of mathematical sciences, which will enable her to work on the complex, interdisciplinary problems that are of vital societal interest.

I am happy to provide you with any information you may require as you assess Ms. Kelly's suitability for an undergraduate award. She is currently applying for graduate school, and I have no doubt she will have an outstanding graduate career. She is an extremely strong mathematical sciences student with impressive computational skills. I look forward to having her in class again.

Sincerely,

Eleanor W. Jenkins, Ph.D.
Associate Professor