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SARS-CoV-2: Structure, vaccines, testing, and modeling its spread

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In this workshop, I will go over activities related to many aspects of SARS-CoV-2, the coronavirus that has spurred a deadly pandemic and altered life across the globe. These activities were originally developed to teach remotely during the spring of 2020 and have been modified for in-person teaching more recently (and updated with the latest information when possible). This hands-on workshop will provide activities in three areas related to coronaviruses and the current pandemic: (1) structure/function of coronaviruses and general information about DNA and mRNA vaccines (mainly readings, videos, and questions to answer), (2) problem-based-learning cases about different types of virus testing (PCR/molecular, antigen or antibody test), and (3) modeling the spread of infections through populations using a free computer simulation developed by the Shaman lab at Columbia University (https://bioinformaticshome.com/online_software/virus-outbreak/US/index.html#). Participants will have the opportunity to go through activities in each of these 3 areas and will be given resources for teaching these topics at their institutions. These activities could be done in a laboratory setting or in a classroom (with access to computers) and are appropriate for introductory biology students. For the past few semesters, students have rated these activities highly and have indicated that they enhanced their knowledge and understanding of SARS-CoV-2.

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