Assign #1 Comments on Turbulence in relationship to other fluid flow phenomena

1. The mathematical analysis may require means that don't rely on exact solutions but require detailed understanding of the flow itself to relate analysis to governing equations. In this regard the mathematics may be less straight forward requiring interpretation.
2. The energy cascading process is unique and the fact that small scales play a large role in the overall dynamics.
3. The diffusive nature of the physical process is unique. Vorticity plays a large role in the underlying physical aspects of the flow.
4. The range of scales in time, length and velocity can be very wide and have a strong Reynolds number dependence.
5. The use of Reynolds averaging to arrive at a means to apply statistically based solutions is also unique.
6. The random nature of the flows and the role of perturbations informing the flow results in a very difficult situation to evaluate precisely and accurately at all scales of motion.