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Gravitational Wave Detection in the Introductory Lab LIOR M. BURKO, Georgia Gwinnett College — Great physics breakthroughs are rarely included in the introductory physics course. General relativity and binary black hole coalescence are no different, and can be included in the introductory course only in a very limited sense. However, we can design activities that directly involve the detection of GW150914, the designation of the Gravitation Wave signal detected on September 14, 2015, thereby engage the students in this exciting discovery directly. The activities naturally do not include the construction of a detector or the detection of gravitational waves. Instead, we design it to include analysis of the data from GW150914, which includes some interesting analysis activities for students of the introductory course. The same activities can be assigned either as a laboratory exercise or as a computational project for the same population of students. The analysis tools used here are simple and available to the intended student population. It does not include the sophisticated analysis tools, which were used by LIGO to carefully analyze the detected signal. However, these simple tools are sufficient to allow the student to get important results. We have successfully assigned this lab project for students of the introductory course with calculus at Georgia Gwinnett College.

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