1154-11-2747 **Alvaro Cornejo*** (alvaro.j.cornejo@gmail.com), University of California, Santa Barbara, Department of Mathematics, South Hall, Room 6607, Santa Barbara, CA 93106, **Owen Ekblad** (oekblad@umich.edu), University of Michigan at Dearborn, Department of Mathematics and Statistics, 4901 Evergreen Rd 2002 CASL Building, Dearborn, MI 48128, **Marietta Geist** (geistm@carleton.edu), Carleton College, Department of Mathematics and Statistics, One North College St., Northfield, MN 55057, **Kayla Harrison** (kaylaih98@yahoo.com), Mathematics, Physics, Computer Science, 4200 54th Avenue South, St. Petersburg, FL 33711, and **Abigail Loe** (loea@carleton.edu), Carleton College, Department of Mathematics and Statistics, One North College St., Northfield, MN 55057. *Minimal Discriminants of Rational Elliptic Curves with Specified Isogeny.*

By a rational elliptic curve, we mean a projective variety of genus 1 that admits a Weierstrass model of the form $y^2 = x^3 + Ax + B$ where A and B are integers. For a rational elliptic curve E, there is a unique quantity known as the minimal discriminant which has the property that it is the smallest integer (in absolute value) occurring in the $\mathbb{Q}$-isomorphism class of E. In 1975, Hellegouarch showed that the elliptic curve $y^2 = x\,(x + a)\,(x - b)$ for relatively prime integers a and b comes equipped with an easily computable minimal discriminant. Recently, Barrios extended this result to all rational elliptic curves with non-trivial torsion subgroup. This project gives a classification of minimal discriminant for rational elliptic curves that admit a cyclic isogeny of degree $N = 5, 6, 7, 8, 9, 10, 13$. This work is part of PRiME (Pomona Research in Mathematics Experience) with assistance by Alex Barrios and Timothy McEldowney. This work was sponsored by the National Science Foundation (DMS-1560394). (Received September 17, 2019)