

Books:

- S. Chandrasekhar, *“The mathematical theory of black holes.”* The classic and authoritative monograph.
- M. Maggiore, *“Gravitational waves.”* Chapter 12 of Volume 2 covers black-hole perturbation theory. Excellent text. See it for a discussion of the source terms which we did not cover in class.

Reviews:

- H.-P. Nollert, *“Quasinormal modes: the characteristic ‘sound’ of black holes and neutron stars”*, Class. Quant. Grav. **16** (1999) R159-R216.
- K. D. Kokkotas and B. G. Schmidt, *“Quasinormal modes of stars and black holes”*, Living Rev. Rel. **2** (1999) 2.
- E. Berti, V. Cardoso, and A. O. Starinets, *“Quasinormal modes of black holes and black branes”*, Class. Quant. Grav. **26** (2009) 163001. I encourage you to read (at least!) Sec. 1.2. on “Milestones” in quasinormal mode research. This review is also an excellent source for a first reading on applications of quasinormal modes in the context of gauge-gravity duality (e.g., AdS/CFT). See Sec. 8 for this. See also [this paper](#).
- A. Pound and B. Wardell, *“Black hole perturbation theory and gravitational self-force”*. Sec. 4 discusses Teukolsky’s formalism. Lots of important material put together for the black hole perturbation theory aficionado.

Others:

- *“Black Hole Perturbation Toolkit”*. “Open tools for black hole perturbation theory”. Mathematica, C/C++, Python packages ready to be used for various problems in black hole perturbation theory.
- This [page](#), curated by E. Berti, has tabulated the numerical values of quasinormal modes for various spacetimes and perturbing fields.