

How to Get Your Amateur Radio License

Anyone can listen to amateur radio transmissions with the right radio equipment. But if you want to fully participate in the hobby you'll have to be able to transmit, and for that you'll need a license issued by the Federal Communications Commission, or FCC. There are three steps to getting a license.

1) Learn About the Types of Licenses Available and What You Have to Do to Earn Them

There are three types of amateur radio license:

- *Technician* – This entry-level license allows you to transmit on all amateur radio frequencies above 30 MHz and a limited number of frequencies below 30 MHz.
- *General* – This intermediate-level license allows you to transmit on all frequencies permitted by the Technician license, and gives you extensive access to additional frequencies below 30 MHz. (While worldwide communication is possible with a Technician license, these additional frequencies, not to mention higher power limits, make such operation far more likely.)
- *Extra Class* – This license permits you to transmit on all amateur radio frequencies.

The amateur radio exams you have to take to get these licenses are divided into three sections, called elements:

- Element 2 is a 35-question multiple-choice test covering *entry-level* questions on regulations, operating practices, and radio theory.
- Element 3 is a 35-question multiple-choice test covering *intermediate-level* questions on regulations, operating practices, and radio theory. It's harder than Element 2.
- Element 4 is a 50-question multiple-choice test covering *advanced-level* questions on regulations, operating practices, and radio theory. It's harder than Element 3.

Note that there's no longer a Morse code requirement for amateur radio licenses. Your exam will be dit- and dah-free.

The license you aim for will determine which elements you have to take:

- To obtain a Technician license, you have to pass Element 2.
- To obtain a General license, you have to pass Elements 2 and 3.
- To obtain an Extra Class license, you have to pass Elements 2, 3, and 4.

All of this might seem needlessly complicated, but it's really not. To get a given license requires passing not only the element for that license (Element 2 for Technician, 3 for General, and 4 for Extra Class), but *also* the elements for all lower-privilege licenses, so you might as well earn each license class in order. Take Element 2 and earn the Technician license, then Element 3 and earn the General license, then Element 4 and earn the Extra Class license. Stop whenever you've earned the license you ultimately want.

How much time should you give yourself to study each element? Some folks, particularly those with an engineering or science background, might take all three elements in a single test session, while others might wait years before taking the next element. It's totally up to you and what you feel comfortable with.¹

2) Study for the Test

As mentioned earlier, all of the tests are multiple-choice. There are a few other things to know about the construction of the tests that will make studying easier:

- The Element 2 and Element 3 exams have 35 multiple-choice questions; Element 4 has 50.
- The questions for each element are drawn from a large, open pool. The Element 2 and Element 3 question pools have a minimum of 350 questions, from which 35 are selected to create your test. The Element 4 pool has a minimum of 500 questions, from which 50 are drawn. ***The complete list of questions and answers for each element are available for you to study.***
- Although you get to see the answers and the distractors for each question, you can't assume that the answers will be presented in the same order on your test. Memorizing the letter—A, B, C, or D—corresponding to the correct answer isn't going to work.
- A passing grade for any license exam is 74%. If you answer any 26 questions correctly on a Technician or General exam, or any 37 questions on an Extra Class exam, you pass.

So, what's the best way to study? There are several options, allowing you to learn in a way that suits you.

Study guides – These books will explain the test material and go over the test pool questions and answers. A few of the more popular study guides include:

- ARRL License Manuals – The American Radio Relay League, or ARRL, is a national organization of amateur radio operators that's been around for over a hundred years.

¹ The writer of this guide took his General test in 1966 and his Extra Class test in 1985, so he's certainly not going to be calling out other test-takers as slowpokes.

Their manuals are solid, albeit a bit dry, and are available from the ARRL (<http://www.arrl.org>) or Amazon.

- Gordon West manuals – These manuals, written by an amateur radio operator who’s been helping people earn their licenses since the invention of fire, tend to be a bit lighter and easier to read than the ARRL’s. Just search for “Gordon West” on Amazon.
- KB6NU’s No-Nonsense Study Guides – These guides take a different, somewhat condensed approach to explaining the material. You can find them at <https://www.kb6nu.com/study-guides/>. Note that a free PDF version of the Element 2 Technician guide is available for download on the website.

Practice exams – A number of web sites offer interactive online practice exams:

- ARRL website: <http://arrlexamreview.appspot.com/>
- HamStudy website: <http://hamstudy.org>
- QRZ website: <https://www.qrz.com/hamtest>

Flash cards – It’s dangerous to use practice exams alone as a measure of how well you’re doing. Practice test questions are chosen randomly, so you’ll have to take a *lot* of tests before you’ve been exposed to all of the questions in the pool. The HamStudy site (<http://www.hamstudy.org>) offers what it calls Study Mode, in which you are presented with all of the pool questions in flash card format. The site keeps track of the questions you miss, repeating them at random intervals, and also maintains a tally of the percentage of pool questions you’ve already seen. There’s even an explanation of why the correct answer is the right one on the back of each card. Using these flash cards in conjunction with occasional practice tests is a much more robust way to study than just taking practice exams.

Classes – For those who prefer to learn in a classroom setting, licensing classes are available. They tend to come in two flavors: multi-session classes that span a period of weeks or months, or one-day cram sessions with an examination at the end. You can find classes available in your area at <http://www.arrl.org/find-an-amateur-radio-license-class>.

YouTube – Some people have found YouTube videos of license classes, or of individuals explaining exam topics, to be helpful. If you’re going for a Technician license, search for “technician license class course.” Here’s one thing to keep in mind when watching these: anyone can make a YouTube video.

There are a couple things to watch out for when choosing a study method:

- In virtually every case, the study method you choose covers a *single* license element at a time. Be sure you’re studying the proper element.
- ***The question pools for each element are updated every four years.*** Make sure you’re studying the current pool for the element you want to pass. Most exam resources will list

the range of dates covered by the pool they're using.² If you plan to use YouTube videos as a study tool, check the dates: some of those videos are current, but some are *very* old!

One other study tip: Within each element's question pool, questions are divided into groups: 35 groups each for Elements 2 and 3, and 50 groups for Element 4. Each test is created by selecting one question from each group. Knowing this can be useful: if you've learned the answers to all but, say, two groups of questions, which you find to be incomprehensible, you can skip those groups and know that doing so will produce, at most, two wrong answers on your test. This tip is mentioned in the same spirit that a flight attendant mentions there's a flotation device under your seat: don't use it unless you have no other choice.

3) Take the Exam

When you get to the point where you're passing practice tests with scores of 85% or above, it's time to take your license exam. Believe it or not, this is the easy part.

Amateur radio license exams are administered by volunteer examiners in all fifty states. Here in the South Bay, the Silicon Valley VE Group offers exams in Saratoga on the first and third Saturday of every month. More information is available at <http://svve.org>.

You can find other exam sessions at <http://www.arrl.org/find-an-amateur-radio-license-exam-session>.

Where Can I Get More Information?

ARRL licensing, education, and training info, including complete listings of all question pools - <http://www.arrl.org/licensing-education-training>

W5YI VEC (another organization that administers amateur radio exams) - <http://www.w5yi-vec.org/>

FCC – The Amateur Radio Service - <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/amateur-radio-service>

Any questions? Contact me at w6bp@arrl.net.

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² For this reason, buying a used license manual can be a bit dicey. If that previously-owned manual you're looking at on eBay is a lot cheaper than a new one, there's probably a reason why.