Getting Masters Degrees in Applied Mathematics at USC[1]

When there is a 'b' part of a class, it is a continuation of the part 'a'. Unless it is explicitly required by the program, you do not have to take part b if you took part a, and you can take part b that does not immediately follow part a (e.g. you can take MATH 507a during you first semester and then take MATH 507b during your fourth semester). It can happen that even consecutive a and b parts are taught by different instructors. Many graduate classes have undergraduate pre-requisites preventing you from on-line registration. Talk to somebody at the front office to resole this.

If you want to take an elective not in the math department, please let the program director (PD) know in advance, that is, before you register, so that the PD can look and decide whether the class is suitable for your degree. You need PD's approval of every elective you take, especially if it is not in math department.

Suggested plan for MS in Applied Math

General: You need at least 30 units of approved credit; and 15 of those units come from required math courses: 501, 505ab, 570a, 601. Keep in mind that 505a and 570a are offered only in the fall semesters and 505b is offered only in the spring semesters. Math 501 is usually offered in the spring semesters and also, as a rule, during the first summer session (from mid-May to early July); if necessary, math 502a is a possible substitute. Math 601 is offered occasionally and can be replaced with a statistics class, such as 541a or 547.

In addition to the 30 units of classes, you need to register for MATH 594ab (additional 2+2 units). Ideally you do it during the fall and spring semesters of the second year, but summer registration could also be possible. During the first year, try to find somebody in the department who would serve as your thesis advisor. There are no formal requirements about the thesis, such as minimal or maximal number of pages, so all the details should be worked out with your advisor. **Rules about submission of the thesis, including formatting requirements, are set by the Graduate School. The Graduate School also sets the submission deadlines for Spring, Summer, and Fall graduations. Typically, these deadlines are several weeks before the end of the corresponding semester. Make sure to check with the Graduate School for exact dates and other details.**

The suggested plan assumes four semesters of studies, starting with a fall semester, no need to take special courses, such as English language, and leads to at least 38 units of credit (all graduate math classes beside 594ab are 3 units). Some of the specialized classes, such as 504ab, are not offered every year.

The suggested unit count is higher than required and can be cut down all the way to the required minimum of 34. With some planning and summer work you can finish in under 2 years.

If you want to take classes outside math department, then try to investigate the matter during the first year and wait until the second year before actually taking the classes.

Possible course schedule.

Semester 1 (fall): MATH 505a, 570a, and one class of your choice, for example, MATH 532 (combinatorics) or MATH 574 (matrix analysis)

Semester 2 (spring): MATH 501, 505b, and one class of your choice, for example, MATH 525b or MATH 541a (statistics).

Semester 3 (fall): MATH 594a and two classes of your choice, for example, MATH 509 (stochastic differential equations), MATH 530a (stochastic analysis for finance), or MATH 541b.

Semester 4 (spring): MATH 601, 594b and one class of your choice, for example, MATH 520 (complex analysis).

[1]Version of December 26, 2022

Suggested plan for MA in Applied Math

You need at least 24 units, but only three come from a required course: MATH 525a (real analysis with measure theory). Nine more units should come from the following list:
MATH 502a Numerical Analysis
MATH 502b Numerical Analysis
MATH 505a Applied Probability (no measure theory), or MATH 507a Theory of Probability using measure theory
MATH 505b Applied Probability, or MATH 507b Theory of Probability
MATH 541a Introduction to Mathematical Statistics
MATH 541b Introduction to Mathematical Statistics
MATH 555a Partial Differential Equations
MATH 565a Ordinary Differential Equations.

Twelve more units are up to you. They can also come from the above list, or from other math classes not on the list, such as MATH 530ab (stochastic analysis for finance), 532 (combinatorics), or 571 (applied matrix analysis), or even from math-related classes in economics, engineering, or other disciplines. Keep in mind that most graduate classes are offered once a year, either during the fall semester or the spring semester.

If you plan to take classes outside math department, then try to investigate the matter during the first year and wait until the second year before actually taking the classes.

The thesis option requires additional 4 units of MATH 594ab, preferably during the fall and spring semesters of the second year. **Rules about submission of the thesis, including formatting requirements, are set by the Graduate School. The Graduate School also sets the submission deadlines for Spring, Summer, and Fall graduations. Typically, these deadlines are several weeks before the end of the corresponding semester. Make sure to check with the Graduate School for exact dates and other details.**

In case you go with exams, those are offered twice a year, during the fall and spring semesters. The exact dates can vary year-to-year.

The suggested schedule below is a "uniform load", with 2 three-unit classes per semester. This leads to exactly 24 units by the end of the second year. With higher load per semester, you can finish faster. Remember that thesis option would require four more units of MATH 594ab during the second year.

Possible course schedule.

Semester 1 (fall): MATH 525a and one class of your choice, for example, MATH 505a/507a, MATH 532 (combinatorics) or MATH 574 (matrix analysis)

Semester 2 (spring): three classes of your choice, for example, the 'b' part of something that you took in the fall. Another possibility is MATH 541a.

Semester 3 (fall): Two classes of your choice, for example, MATH 509 (stochastic differential equations) or MATH 530a (stochastic analysis for finance), MATH 555a (PDEs), or MATH 541b, or MATH 502a.

Semester 4 (spring): Two classes of your choice, for example, whatever you might be missing from the required list and MATH 520 (complex analysis).

Some popular (and MA/MS-admissible) non-math electives.
CSCI: 567, 570, 670, 672;
ECON: 613, 614, 652, 659, 691;
EE: 512, 518, 556, 561;
FBE: 535, 554, 555, 559, 589;
INF: 552, 553;
ISE: 535, 631, 632, 670.