

## Microbiology- A branch of science

Microbiology deals with the study of microscopic living organisms like bacteria, virus and fungi. It is a branch of biology and also includes further specializations like virology and immunology. Microbiology courses are offered at various educational levels from certificate to Doctorate. People can choose the right course for them by considering things like time, fees, package and job prospects.

Here is an overview of the various courses offered in Microbiology.

The duration of each course differs from level to level. Certificate courses may take a few hours while Bachelor courses can take up to 3 years.

Several online platforms offer certificate courses free of cost and can be pursued by anyone. B.Sc. in Microbiology is one of the most opted for courses in graduation.

After pursuing courses in Microbiology, people can get jobs as Microbiologist, Environmental Microbiologist, Biomedical Scientist, Pharmacologist etc. The average salary of these jobs ranges from INR 4-10 LPA in India.

There are several additional skills which are also looked for by employers while employing microbiology graduates. These

include research skills, analytical skills and presentation skills. There would also be discussion further in the article.

### Microbiology Courses after 12th Highlights

As mentioned, Microbiology courses are offered at various educational levels. The table below shows the highlight of each of these courses to provide an overview of the course.

Popular Courses	<p>Certificate: A plethora of topics ranging from epidemic study to algae microbiology.</p> <p>Diploma &amp; PG Diploma: Bioenergetics and Molecular Enzymology, Virology, Immunology, Microbial Physiology etc.</p> <p>UG: B.Sc Microbiology and B.Sc (Hons) Microbiology PG: M.Sc Microbiology, M.Sc Molecular Biology and Environmental Microbiology, M.Sc Clinical Microbiology etc.</p> <p>Doctorate: PhD in Microbiology, Applied Microbiology etc.</p>
Duration	<p>Certificate: A few hours to several months</p> <p>Diploma &amp; PG Diploma: 1-2 years</p> <p>UG: 3-4 years</p> <p>PG: 2 years</p> <p>Doctorate: 2 years</p>
Eligibility	<p>Certificate: Pass in Class X or XII from a recognized board</p> <p>Diploma: Pass in Class XII from a recognized board with science stream including Biology.</p> <p>PG Diploma: Graduation from a recognized university with science stream. UG: Pass in 10+2 from a recognized board in Science stream with Biology. PG: Pass in UG from a recognized University in Microbiology or related field. Doctorate: Pass in PG program with any Biology subject as major</p>

Average Fees	<p>Certificate: INR 10,000–50,000</p> <p>Diploma &amp; PG Diploma: INR 5,000–30,000</p> <p>UG: INR 1,00,000–3,00,000</p> <p>PG: INR 1,00,000–5,00,000</p> <p>Doctorate: INR 10,000–2,75,000</p>
Online Courses	Available
Types of Online Courses	edx, Coursera, Udemy, etc. (Includes Paid and Unpaid courses)
Top Job Prospects	Microbiologist, Research Associate, Environmental Microbiologist, Biomedical Scientist, Pharmacologist, Laboratory Technician etc.
Average Salary	<p>Certificate: INR 2–3 LPA Diploma: INR 2–5 LPA UG: INR 3–8 LPA</p> <p>PG: INR 4–10 LPA</p> <p>Doctorate: INR 10–20 LPA</p>

### Certificate courses in Microbiology after 12th

Certificate courses in Microbiology are mostly offered through online modes. Many people have started opting for online courses, especially since the Covid 19 lockdown. The duration of certificate courses can range from a few hours to several months.

·Certificate courses in Microbiology are suitable for people who wish to learn about microbiology but do not want to spend years for the same.

They are also suitable for people who wish to make a career in Microbiology and wish to learn the basics of the course before opting for a full-time degree.

Students looking to opt for short term courses can opt for certificate courses after X or XII.

Learning certainly increases the pay of the individual. Opting for a certificate course in Microbiology would allow the individual to earn a starting salary of INR 2-3 LPA, provided that they also learn additional skills which would also be discussed at the end of the article.

#### Online Microbiology Courses After 12th Certificate

The table below shows the top certificate courses available online in Microbiology.

Certificate Name	Provider	Duration	Fees
Become a Microbiology Laboratory Technician	Udemy	2 hours	INR 1,280
Science Microbes	Open University UK	6 months	EUR 192 (INR 16,953)
Introduction to Microbiology	Udemy	25.5 hours	INR 1,600

There are several other courses also available on online learning platforms. Other courses include Virology, Medical Microbiology, Bacteriology etc.

**How are Admissions in the Certificate Program of Microbiology Courses After 12th Done?**

Admissions in certificate courses are quite simple and they can be pursued by anyone regardless of their educational background. Most of the time they do not require any entrance test.

Enrollment in online certificate courses can be done by simply applying through the website. Candidates need to submit the final assignments in order to obtain the actual certificates.

For paid courses, candidates need to pay first in order to get access to the learning material and videos. EMI options are also available.

#### Top Colleges for Certificate Microbiology Courses After 12th

Times Higher Education Global Ranking	College Name	Location
7	Harvard University	Cambridge, USA
31	University of California, San Diego	San Diego, California, USA
401	Israel University	Israel
501-600	The Open University UK	United Kingdom

#### Diploma and PG Diploma Microbiology Courses After 12th

The key difference between Diploma and PG Diploma courses is in terms of eligibility. Diploma courses can be pursued directly after XII, whereas PG Diploma courses are pursued after graduation.

Diploma courses save both time and money as they are shorter.

term specified courses.

- While the diploma courses are 1-year long, PG Diploma course can be of both 1- and 2-years duration.
- These courses are also preferred by students who want to join the job sector soon, rather than dedicating long years to detailed education.
- Just like certificate programs, diploma computer courses also give you the flexibility to choose from a huge set of specializations.

Candidates looking to pursue a short-term career oriented course should opt for Diploma or PG Diploma courses. The average starting salary after pursuing Diploma or PG Diploma courses in Microbiology ranges from INR 4-6 LPA.

### Top Diploma Microbiology Courses After 12th

Mostly, PG Diploma courses are offered in Microbiology. Here are a few of the diploma courses offered.

Diploma Name	Colleges Offering	Average Fees
Diploma in Microbiology	PMCH Patna Era Medical College Lucknow Government Medical College Bhavnagar	-

PG Diploma Name	Colleges Offering	Average Fees	Mode
Post Graduate Diploma in Microbiology	Government Medical College CMJ University Texcity College of Paramedical Sciences	INR 20,000-1,00,000	Offline
PG Diploma in Medical Microbiology Technology	SRM Medical College Hospital and Research Centre	INR 1,00,000	Offline
PG Diploma in Clinical Virology and Immunology	Amity University	INR 1,20,000	Offline
PG Diploma in Industrial Microbiology :	Amity University MKU	INR 12000-98,000	Offline /Distance

### Top PG Diploma Microbiology Courses

How are Admission in Diploma and PG Diploma Microbiology Courses After 12th Done?

Admission in Diploma and PG Diploma courses are mostly done on the basis of merit.

- For the Diploma courses, marks of Class XII score is considered, while Graduation score is considered for PG Diploma courses.
- Students need to be of science background in order to become eligible for admissions in both Diploma and PG Diploma courses.
- A merit list is released by colleges in order to determine the candidates for admission. The cut off depends upon the

number of applicants and average marks obtained.

### Top Colleges for Diploma and PG Diploma Microbiology Courses After 12th

#### Colleges for Diploma Microbiology Courses After 12th

Colleges	Location
PMCH	Patna
Era Medical College	Lucknow
Government Medical College	Bhavnagar
Jawaharlal Nehru Medical College	Wardha

#### Colleges for PG Diploma Microbiology Courses

Colleges	Location
Government Medical College	Bhavnagar
CMJ University	Meghalaya
Texcity College of Paramedical Sciences	Coimbatore
Amity University	Noida
MKU DDE	Madurai

#### Bachelor Microbiology Courses After 12th

A Bachelor's degree is one of the most opted for courses, especially in the science field. It is a full time, on campus course which provides an in-depth knowledge about the subject.

- The duration of Bachelor Microbiology courses is 3-4 years.
- Admissions are mostly done on the basis of both entrance as well as merit.
- These courses provide students with proper foundation learning in the field of microbiology.

Students looking to create a long-term career in Microbiology should opt for this course.



It also serves as an important first step towards pursuing higher education in the same field.

Graduates of Microbiology courses can get a starting salary of INR 4-8 LPA. The salary depends upon their knowledge and additional skills acquired by the individual.

### Top Undergraduate (UG) Microbiology Courses After 12th

Here is the list of top microbiology courses available.

Course Name	Top Colleges	Average Fees
B.Sc Microbiology	<ul style="list-style-type: none"> <li>· Delhi University</li> <li>· Jaipur National University</li> <li>· Amity University</li> </ul>	INR 15,000-2,00,00
B.Sc (Hons) Microbiology	<ul style="list-style-type: none"> <li>· Bundelkhand University</li> <li>· DAV University</li> <li>· Noida International University</li> </ul>	INR 4,000-2,00,000
B.Sc Medical Microbiology	<ul style="list-style-type: none"> <li>· Chhatrapati Shahu Ji Maharaj University</li> <li>· Co-Operative Institute of Health Sciences</li> <li>· Dolphin (PG) Institute of Biomedical and Natural Sciences</li> </ul>	INR 10,000-2,00,000

### How are Admissions in Bachelor Microbiology Courses After 12th Done?

Admission in bachelors of science courses is done by both entrance as well as merit.

- Some of the top entrance exams conducted in India are DUET, LPUNEST, NEET and IPU CET.
- While some exams are conducted specifically for science courses, exams like DUET are done for all the courses alike.

Students need to have completed their XII with a minimum of 50% in science stream to become eligible for admissions. They should have Physics, Chemistry and Biology as subjects in order to pursue Microbiology.

### Bachelor Microbiology Courses After 12th Entrance Exam

Entrance Exam	Exam Date
DUET	<a href="#">Click Here</a>
NEET	<a href="#">Click Here</a>

### Colleges for Bachelor Microbiology Courses After 12th

NIRF Ranking	College Name	Location
17	<a href="#">Madras Christian College</a>	Chennai
18	<a href="#">Delhi University</a>	Delhi
32	<a href="#">Amity University</a>	Noida
42	<a href="#">Fergusson College</a>	Pune
90	<a href="#">St.Xavier's College</a>	Mumbai

### Master Microbiology Courses

Master Microbiology courses are usually pursued by students wishing to enter the research or medical field. There are a lot of

specialization courses also available in Microbiology like Virology, Environmental microbiology, etc.

The duration of these courses is usually 2-3 years long. It is also a full-time course and requires the student to attend college.

Master degree provides a deeper knowledge about the subject and makes the person an expert. Admissions here also are majorly done through merit, i.e marks obtained in graduation.

Masters is also pursued by candidates wanting to pursue a career as a professor or research assistant. The starting salary after a Master degree in Microbiology is INR 5-10 LPA.

### Top Postgraduate (PG) Microbiology Courses

Course Name	Top Colleges	Average Fees
M.Sc Microbiology	St. Xavier's College Fergusson College St. Joseph's College	INR 20,000-1,00,000
M.Sc Medical Microbiology	JSS Medical College and Hospital Karnataka Kasturba Medical College Jamia Hamdard University	INR 10,000-5,00,000

M.Sc Virology	Amity University Sri Venkateswara College Manipal University	INR 2,00,000- 4,00,000
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### How are Admissions in Master Microbiology Courses Done?

Admission in Masters programmes are done solely on the basis of merit.

- Many universities like Amity and St. Xavier's College take personal interview of the shortlisted candidates through merit.
- Candidates need to have completed their bachelors in a biology stream, preferably microbiology only. They should also have a minimum 50% of marks in graduation.
- Many colleges give direct admissions to people if their graduation marks are high.

NIRF Ranking	College Name	Location
5	<a href="#">Presidency College</a>	Chennai
7	<a href="#">St. Xavier's College</a>	Kolkata
8	<a href="#">Manipal University</a>	Manipal
9	<a href="#">Savitribai Phule Pune University</a>	Pune
31	<a href="#">St. Joseph College</a>	Tiruchirappalli, Tamil Nadu
32	<a href="#">Amity University</a>	Noida, UP
73	<a href="#">St. Francis College for Women</a>	Hyderabad
90	<a href="#">St. Xavier's College</a>	Mumbai

### Colleges for Master Microbiology Courses

#### Doctorate Microbiology Courses

Doctorate Microbiology courses are mainly pursued for entering the research field.

• The minimum duration of these programs is

2 years, though it can be extended according to demands of research. After PhD, students also get the option to become Teachers and Lecturers in both private and government colleges.

The average salary after Doctorate courses is INR 10-20 LPA in India.

### Top PhD Microbiology Courses

Course Name	Top Colleges	Average Fees
PhD Microbiology	Banaras Hindu University of Calcutta, University of Hyderabad	INR 5,000-50,000
PhD Clinical Microbiology	Lovely Professional University	INR 80,000

## How are Admissions in Doctorate Microbiology Courses Done?

Here too, admissions are mostly done on the basis of merit Marks of Post graduation are considered.

Exams like CBSE UGC NET, CSIR UGC NET, JRF, etc. are conducted to provide research fellowship in India. There are multiple exams conducted to get research fellowships in India.

Candidates need to have scored at least 55% marks in graduation in order to become eligible.

Institutes like Lovely Professional University take entrance last LPU NEST followed by a personal interview for admissions.

## Colleges for Doctorate Microbiology Courses

NIRF Ranking	College Name	Location
3	Banaras Hindu University	Varanasi, UP
6	University of Hyderabad	Hyderabad
7	Calcutta University	Kolkata, West Bengal
30	Mahatma Gandhi University	Kerala
78	Lovely Professional University	Punjab

## What are the Top Job Options after Microbiology Courses After 12th?

There are several career options available for people who study microbiology. Graduates get employed at various sectors including healthcare and manufacturing.

Below we have discussed the most common job prospects chosen by students of microbiology.

### ➤ Microbiologist

One of the most common career options opted by graduates of microbiology is being a Microbiologist. A microbiologist is a

scientist who studies microscopic organisms like virus and bacteria. They research and use their skills to convert the researched knowledge into practical applications.

Starting Salary: INR 3-4 LPA

➤ Environmental Microbiologist

Just like Microbiologists, Environmental Microbiologists also research microscopic organisms. The key difference is that they research to establish the relationship between the environment and organisms. They also use their knowledge to benefit the environment and work towards reducing pollution and carbon footprint. This career has a huge prospect in future as people are moving towards sustainable development.

Starting Salary: INR 8-9 LPA

➤ Pharmacologist

A pharmacologist is also a scientist, but they research in the medical field. They research and form new drugs which help cure various diseases. They also study microscopic organisms to determine their relationship with the human body and medicines.

Starting Salary: INR 4-6 LPA

➤ Laboratory Technician



A laboratory technician analyses the samples and records the experiment for future reference. They also maintain the lab and keep record of the materials used. They serve as assistants to scientists conducting research and experiment.

Starting Salary: INR 3-5 LPA

### What Skills are Required for Microbiology Courses After 12th?

No matter the job sector, employers always look for certain additional skills while recruiting people. Even students of microbiology require additional skills to stand out of the crowd and increase their chances of getting a well paying job.

It is important to become a versatile person with additional skills to excel in any field. Here are a few common skills which provide a competitive advantage to people.

#### ✓ Data Visualization

It is important for graduates of microbiology to be able to present their research to other individuals. They need to excel in data visualization in order to present their ideas effectively. Data visualization is the representation of data using graphs, charts or maps.

#### ✓ Presentation

Presentation skills are also important in any job sector. Effective presentations allow people to communicate and deliver their ideas effectively. They also create a good



impression on people. Microsoft PowerPoint is one of the most common programmes where people create presentations. It is a universal programme and can be used in industry from IT to Medical.

### Top Presentation Courses

#### ✓ Communication

Learning communication skills is imperative to work in any organisation. Microbiologists need to communicate their research and ideas in an effective manner. Some may also require good communication skills in order to persuade people. Effective communication also leaves a long-lasting impression on people and can increase future job prospects as well.

### Common Microbiology Questions

Ques. Which is better, normal B.Sc Biology or B.Sc Microbiology?

Ans. B.Sc Biology deals with the study of all living organisms from humans to plants. Microbiology only deals with the study of microscopic organisms like viruses and fungi. It all depends upon the personal preference.

Ques. Can a PCM student pursue B.Sc Microbiology?

Ans. It is important for students to have Biology as a subject in class XII with a minimum percentage of 50% to be able to pursue Microbiology from a good institute.

ues. Are pharmacologist doctors?

Ans. They do not necessarily deal with patients but research to form new medicines. They also need to be through with their research and most of them pursue a PhD which technically makes them a doctor.

ues. What is Virology?

Ans. Virology is the study of viruses and their impact on humans and the environment in general.

Ques. What are the best colleges for B.Sc Microbiology?

Ans. Some of the best colleges are Delhi University, Madras Christian College and St.Xavier's college.

ues. Do I have to give an entrance exam to take admission in DU or B.Sc Microbiology?

Ans. Admissions in DU are conducted through both entrance test DUET and on the basis of merit.

ues. Is being an environmental microbiologist a good career option?

Ans. Yes, it is an extremely good career option as society is moving towards sustainable development. You can get employed in both government and private sector as an environmental microbiologist.

ues. Which colleges provide M.Sc Medical Microbiology?

Ans. A few of the colleges are JSS Medical

ues. What is the average salary of microbiologists College and Hospital Karnataka, Kasturba Medical College, and Jamia

Standard University.

Ques. What is the average salary of microbiologists?

Ans. The average starting salary ranges from 4-5LPA. As people gain more experience or research the salary increases.

Ques. Do private universities provide financial aid for B.Sc?

Ans. Yes, they do provide financial aid.