Microbiology Project Topics For Students

List of new and unique Microbiology Project Topics in 2025 for students:

1. Bread Mold Rainbow

Grow different color molds on bread to see which mold grows fastest in dark.

2. Yogurt Making Magic

Make yogurt at home using good bacteria and test different kinds of milk for best taste.

3. Pickle Power Science

Learn how bacteria turn cucumbers sour and test different veggies to see which pickle fastest.

4. Cheese Cave Explorer

Grow safe molds on cheeses and compare how each cheese gets its special flavor over time.

5. Spoiled Food Detective

Find out which foods go bad fastest and test simple ways to keep them fresh longer.

6. Kitchen Sponge Surprise

Count germs in kitchen sponges and try different cleaning methods to find the cleanest way.

7. Hand Washing Hero

Test different soaps to see which one removes the most germs from dirty hands.

8. Fruit Rot Race

Compare how fast apples, bananas, and other fruits rot and learn which stay fresh the longest.

9. Milk Souring Speed

Test milk at different temperatures to see which heats up and turns sour the fastest.

10. Sugar Fermentation Fun

Mix yeast and sugar to watch bubbles form and learn how microbes make carbon dioxide gas.

11. Kombucha Culture Creation

Grow healthy bacteria and yeast together to make fizzy kombucha tea that tastes yummy.

12. Sourdough Starter Science

Feed wild yeast from air to make bread rise without using store-bought yeast packets.

13. Fermented Vegetable Garden

Make sauerkraut and kimchi while learning how salt helps good bacteria grow stronger.

14. Antibacterial Spice Test

Test kitchen spices like cinnamon and garlic to see which ones kill the most germs.

15. Food Preservation Methods

Compare salt, sugar, and vinegar to learn which way keeps food fresh the longest.

16. Probiotic Drink Maker

Create healthy drinks with live bacteria and test which flavors taste the very best.

17. Mold Growth Conditions

Test how heat, light, and water affect mold growth to find perfect growing conditions.

18. Natural Food Colors

Use bacteria to make natural food dyes and test different colors on simple snacks.

19. Fermentation Gas Collector

Capture gases made by yeast and bacteria to measure how much carbon dioxide they produce.

20. Food Safety Temperature

Test different storage temperatures to find which ones stop harmful bacteria from growing.

21. Mouth Bacteria Map

Swab parts of your mouth to see where most bacteria live and compare the results.

22. Hand Germ Geography

Check different spots on hands before and after washing to see where germs hide.

23. Sneeze Spray Science

Use safe methods to see how far germs travel when someone sneezes or coughs.

24. Toothbrush Bacteria Battle

Compare cleaning methods for toothbrushes to learn which way removes most harmful germs.

25. Skin Microbe Safari

Discover helpful bacteria that live on healthy skin and learn how they protect us.

26. Probiotic Power Test

Test probiotic foods to see how they help good bacteria grow stronger in our tummies.

27. Antibiotic Soap Study

Compare regular soap with antibiotic soap to see which one cleans hands better.

28. Sleep and Germ Growth

Test if getting enough sleep helps the body fight off bad bacteria more easily.

29. Exercise and Microbes

See how physical activity changes the helpful bacteria living in our bodies.

30. Stress Bacteria Connection

Learn how feeling worried or stressed can affect good bacteria inside us.

31. Age and Microbe Changes

Compare bacteria samples from kids and adults to find interesting growth patterns.

32. Diet and Gut Health

Test how different foods help good bacteria grow stronger in our stomachs.

33. Hand Sanitizer Strength

Compare different sanitizers to see which one kills the most common germs.

34. Morning Breath Mystery

Discover why mouths have more bacteria in the morning than later in the day.

35. Wound Healing Helper

Learn how good bacteria help cuts and scrapes heal faster and stay clean.

36. Allergy and Microbes

Study how helpful bacteria might protect people from getting bad allergic reactions.

37. Medicine and Bacteria

Test how different safe medicines affect the growth of helpful bacteria in the body.

38. Temperature and Germs

See how changes in body temperature affect how bacteria grow inside us.

39. Immunity Booster Bugs

Find out which good bacteria help make our immune systems stronger against sickness.

40. Hygiene Habit Helper

Test daily hygiene habits to see which ones keep harmful bacteria away best.

41. Soil Bacteria Diggers

Collect dirt samples to discover which soils have the most helpful bacteria living in them.

42. Water Quality Tester

Test pond, river, and tap water to see which water has the cleanest, safest bacteria.

43. Compost Pile Power

Watch how bacteria break down kitchen scraps into rich soil for growing healthy plants.

44. Air Quality Checker

Catch bacteria in the air to find out which rooms are safest for breathing.

45. Plant Root Friends

Discover helpful bacteria that live on plant roots and help them grow bigger and stronger.

46. Pollution Fighter Microbes

Learn how special bacteria can clean up oil spills and other pollution messes.

47. Seasonal Bacteria Changes

Compare bacteria from different seasons to see how weather affects their growth.

48. Ocean Microbe Explorer

Study tiny sea bacteria that make oxygen for fish and people to breathe.

49. Forest Floor Decomposer

Watch bacteria break down fallen leaves into nutrients that feed forest trees naturally.

50. Pond Ecosystem Balance

Discover how bacteria help keep pond water clean and safe for fish.

51. Desert Bacteria Survivor

Learn how tough bacteria live in hot, dry desert places without much water.

52. Rain Water Collector

Test rainwater to see what kinds of bacteria fall from clouds during storms.

53. Garden Soil Improver

Use helpful bacteria to make garden soil richer for growing bigger, healthier vegetables.

54. Cave Microbe Mystery

Study unusual bacteria that live in dark caves without any sunlight for energy.

55. Wetland Water Cleaner

Learn how marsh bacteria clean dirty water naturally better than chemicals can.

56. Urban Bacteria Hunter

Compare city bacteria with country bacteria to see which environment is healthier.

57. Climate Change Helper

Discover bacteria that eat greenhouse gases and help fight dangerous global warming.

58. Recycling Bacteria Worker

Learn how bacteria help break down plastic and other trash in recycling centers.

59. Permafrost Bacteria Sleeper

Study ancient bacteria frozen in ice that wake up when the ice melts.

60. Biofuel Bacteria Maker

Discover bacteria that can make clean fuel from plant materials instead of oil.

61. Microscope Bacteria Zoo

Create a collection of different bacteria shapes to look at under a microscope.

62. Petri Dish Art Gallery

Grow colorful bacteria in fun patterns to make living artwork you can admire.

63. Bacteria Growth Race

Time different bacteria to see which types multiply and grow the fastest.

64. pH Level Bacteria Test

Test how acidic or basic liquids affect bacteria growth in a lab setting.

65. Light Effect Explorer

Learn how different colored lights help or hurt bacteria growth in test tubes.

66. Bacteria Communication Study

Discover how bacteria send chemical messages to talk and work together in groups.

67. Antibiotic Resistance Fighter

Practice safe tests to see how bacteria become stronger against common medicines.

68. Bacteria Shape Sorter

Sort bacteria by shapes like spheres, rods, and spirals to learn how they differ.

69. Growth Medium Mixer

Make different food mixtures to find which ones help bacteria grow biggest.

70. Bacteria Counting Champion

Learn proper methods for counting millions of tiny bacteria in small water drops.

71. Staining Technique Master

Use safe dyes to color bacteria so they show up better under the microscope.

72. Bacteria Movement Tracker

Watch how some bacteria swim and move using tiny hair-like structures called flagella.

73. Colony Size Measurer

Measure bacteria colonies to see how they grow from single cells into big groups.

74. Bacteria Identification Guide

Create a picture book to help identify different bacteria types found in nature.

75. Growth Curve Grapher

Make charts showing how bacteria populations grow from small numbers to millions.

76. Bacteria Preservation Method

Learn safe ways to store bacteria samples for future study and science experiments.

77. Contamination Prevention Pro

Practice sterile techniques to keep unwanted bacteria out of controlled experiments.

78. Bacteria DNA Extractor

Use safe household items to pull DNA out of bacteria for closer scientific study.

79. Fermentation Process Timer

Measure how long different bacteria take to ferment sugar into useful products.

80. Bacteria Ecosystem Builder

Create mini environments where different bacteria types live together and thrive.

Food Microbiology Project Topics for MSc Students

1. **New Ways to Keep Dairy Foods Fresh** Study of good bacteria that make special chemicals to help milk products last longer while keeping them healthy and tasty for people to eat.

2. **Germs That Fight Against Medicine in Food** Deep study of strong germs like Salmonella and E. coli found in store foods that can fight many medicines and how they do this.
3. **Good Bacteria in Special Health Foods** Making and testing new health foods that mix many good bacteria with special food parts to help people's stomach health work better.
4. **Finding and Stopping Harmful Toxins in Grains** New fast ways to find dangerous poisons in wheat and corn and using helpful germs to stop these bad toxins from growing.
5. **Making Plant Foods Taste Better Through Germs** Using controlled germ processes to make plant-based protein foods easier to digest, taste better, and have more healthy parts.
6. **How Bad Germs Stay Alive in Food Factories** How Listeria germs live for long times and stick to surfaces in different food-making places and on machines used to make food.
7. **Studying All Germs in Traditional Fermented Foods** Looking at all the tiny living things in old-style fermented foods and how we can use them in new food science today.
8. **Cold-Loving Germs That Spoil Cold Foods** Finding and studying germs that like cold places and make ready-to-eat cold foods go bad, plus ways to stop them.
9. **How Spoilage Germs Talk to Each Other** Learning how bad germs send messages to each other and making new ways to stop these messages to keep food fresh longer.
10. **Edible Food Wrapping That Fights Germs** Making food wrapping that breaks down in nature and has natural germ-fighting chemicals made from safe food germs.
11. **How Food Germs Handle Tough Conditions** Studying how dangerous food germs change to survive heat, acid, and salty conditions that should kill them.
12. **Protecting Good Bacteria in Food Products** New ways to wrap up good bacteria so they stay alive during food making and storage while still helping people's health.
13. **Fast Ways to Check Food Safety** Making special sensors that can quickly find germs in food-making places and stores to keep food safe in real time.
14. **New Fermented Drinks and Their Safety** Testing new fermented drinks like kombucha and kefir to make sure they are safe and creating rules for good quality.
15. **Turning Food Waste into Useful Things** Using leftover food parts as food for germs to make helpful things like special chemicals and enzymes that help our bodies.
16. **Natural Germ Fighters from Food Germs** Finding and studying natural chemicals made by safe germs that can be used instead of fake chemicals to keep food fresh.
17. **Safety of Lightly Processed Foods** Complete safety check of fresh-cut fruits and ready-to-eat salads, focusing on how dangerous germs survive and grow.
18. **Watching and Controlling Fermentation Processes** Using new technology to watch and make fermentation processes work better in real time during food making.
19. **How Fermented Foods Change Gut Germs** Lab studies that test how different fermented foods change the mix of germs in human stomachs and how they work.
20. **Clean Natural Ways to Keep Food Fresh** Making natural food protection systems using germ-eating viruses and natural germ-fighting chemicals instead of fake preservatives.

General Microbiology Project Topics for MSc Students

21. **How Germs Share Medicine-Fighting Genes** Learning how germs in nature pass genes that fight medicine to each other and what this means for keeping people healthy.
22. **Extreme Environment Germs and Their Uses** Studying germs from very hot, cold, or harsh places and testing their special chemicals for use in making things.
23. **Better Germ Fuel Cells for Clean Energy** Making improved germ fuel cells using chosen groups of bacteria to make more electricity from organic waste materials.
24. **How Germs Stick Together and How to Break Them Apart** Learning how dangerous germs form sticky groups and testing new ways to break these groups for medical treatments.
25. **Using Germ-Eating Viruses as Medicine** Finding and studying viruses that eat germs that fight many medicines to use as treatments in hospitals.
26. **Germ-Made Soap and Its Uses** Making natural soap from local germs better and testing how it can clean up pollution and help get oil from ground.
27. **Studying All Germs in Polluted Places** Complete study of all germs in dirty environments using new DNA reading technology to see what they are and do.
28. **Making New Germ Systems for Medicine** Building new germ systems to make important medicine chemicals using new biology tools and improved chemical pathways.
29. **Germs That Break Down New Pollutants** Finding germs that can break down medicine leftovers and personal care products in dirty water treatment systems.
30. **Finding New Germ-Fighting Chemicals** Looking for new germ-fighting chemicals from germs and testing how they work against germs that fight many medicines.
31. **Germs That Help Plants Grow Better** Studying helpful root germs and how they help crops grow better and handle stress from weather and environment.
32. **Virus and Germ Interactions in Hospitals** Learning how germ-eating viruses and germs work together in hospitals and how this affects medicine-fighting germ growth.
33. **Germs Making Tiny Metal Particles** Using germs to make tiny metal pieces and studying their germ-fighting and chemical-helping abilities.
34. **How Germs Survive Tough Conditions** Studying how germs change to live through hard conditions and how this helps them cause disease and fight medicine.
35. **Making Germ Chemicals Work Better for Industry** Changing and improving germ chemicals to work better and last longer in factory conditions.
36. **How Body Germs Affect Health and Sickness** Learning how germ communities change and affect how the body fights disease and gets sick.
37. **Using Germs to Clean Up Heavy Metal Pollution** Testing germs that can collect and change toxic heavy metals in dirty soil and water systems.
38. **How Germs Talk and Work Together** Studying germ communication systems and how they help germs work together in nature and when causing disease.
39. **Finding New Medicine from Germ Products** Looking through germs for natural chemicals that could become new medicines for treating diseases.
40. **Germ Electric Systems for Waste Treatment** Making systems that use electric germs to clean dirty water and make energy at the same time.

Microbiology Project Topics for BSc Students

41. **Finding and Naming Soil Germs** Using old methods to find, grow, and identify bacteria and fungi from different soil samples by how they look.
42. **Testing How Well Medicine Works on Germs** Finding out which medicines work best against disease germs using standard testing methods with disks and liquid.
43. **Checking Water Quality for Germs** Counting and identifying germs in drinking water, swimming water, and dirty water using standard testing methods.
44. **Bread Yeast Fermentation Studies** Finding the best conditions for yeast to work including temperature, acid level, and food amounts for making products.
45. **Studying How Germs Grow Over Time** Measuring how germs grow in different conditions and making math models to show how fast they grow.
46. **Germs in Food Spoilage and Keeping Food Fresh** Finding germs that make food go bad and testing natural ways to keep food fresh longer.
47. **Plant Extracts That Fight Germs** Testing plant medicine extracts to see if they can kill common disease germs using standard testing methods.
48. **Looking at Germ Shapes Under Microscopes** Detailed study of how bacteria, fungi, and tiny animals look using different staining methods and microscopes.
49. **What Affects How Germs Grow** Testing how temperature, acid level, salt, and oxygen affect how bacteria and fungi grow.
50. **Finding Germs That Make Natural Medicine** Looking through soil germs to find ones that make natural medicine and testing what helpful chemicals they make.
51. **Germs in Hospitals and Healthcare Places** Checking how many germs are on hospital surfaces and testing cleaning methods to prevent infections.
52. **Old Ways of Making Fermented Foods** Learning about traditional fermentation processes and finding natural germs that help make traditional foods.
53. **Changing Germ Genes and Making New Germs** Basic methods for putting new DNA into germs and finding changed germ colonies.
54. **Testing Milk and Dairy Products for Germs** Quality testing of milk and dairy products including finding dangerous germs and counting indicator organisms.
55. **Fungus Shapes and Baby-Making Parts** Detailed study of fungus samples focusing on thread structure, spore making, and how they make babies.
56. **Testing How Well Cleaners Work** Testing different chemical cleaners and sanitizers against common germ and fungus contamination.
57. **How Different Germs Fight Each Other** Learning about fighting relationships between different germs and what this means in nature.
58. **Basic Immune System Tests in Germ Study** Learning about blood tests including clumping tests and special tests to find disease germs.
59. **Testing What Chemicals Germs Make** Finding and measuring germ chemicals including starch breakers, protein breakers, and oxygen chemicals.
60. **Watching Germ Films and Basic Study** Looking at germ film formation on different surfaces under microscopes and testing what affects film growth.

Food Microbiology Project Topics (General)

61. **Making Spoilable Foods Last Longer** Testing special air packaging and natural preservatives to make fresh fruits, vegetables, and meat last longer.
62. **Safety of Street Foods and Ready Foods** Complete germ safety check of popular street foods focusing on dangerous germs and clean cooking practices.

63. **Making New Fermented Food Products** Creating new fermented food products using old and new fermentation methods with focus on making them more healthy.
64. **Finding and Stopping Food Sickness** Study of food sickness outbreaks and making prevention plans for restaurants and food service places.
65. **Natural Food Additives from Germs** Making and studying food-safe colors, flavors, and preservatives from germ fermentation processes.
66. **Quality Control in Food Making Companies** Setting up safety analysis systems and germ watching protocols in food manufacturing facilities.
67. **Germ Chemicals in Food Processing** Using germ chemicals in food processing including fruit juice clearing chemicals and meat softening chemicals.
68. **Organic Food Safety and Germ Contamination** Comparing germ levels and dangerous germs in organic versus regular grown food products.
69. **Cleaning Food Contact Surfaces and Checking** How well cleaning procedures work for food contact surfaces and making checking protocols for cleaning procedures.
70. **Germ Signs for Food Quality Checking** Making fast detection methods for germ signs that match with food quality and safety measures.
71. **Sous Vide Cooking Safety and Germ Worries** Germ safety testing of sous vide cooking processes and making safe time-temperature combinations for different foods.
72. **Plant-Based Meat Alternatives Germ Study** Learning about germ stability and safety considerations in plant-based protein products during making and storage.
73. **Handmade Food Making and Germ Safety** Checking traditional food making methods and making guidelines for safe handmade food manufacturing practices.
74. **Food Packaging Material Germ-Fighting Properties** Testing active packaging materials with germ-fighting properties and how well they prevent food spoilage.
75. **Cold Storage Management and Germ Growth Control** Learning about temperature problems effects on germ growth in cold foods and making watching systems.
76. **Fermented Seasonings and Sauce Making** Old and new ways to make fermented seasonings with emphasis on safety and quality standardization.
77. **Food Allergen Cross-Contamination Prevention** Germ-based ways to prevent cross-contamination of allergy-causing ingredients in food processing environments.
78. **Sustainable Food Waste Management through Fermentation** Changing food waste into value-added products through controlled germ fermentation processes.
79. **Germ Spoilage Patterns in Hot Climate Foods** Learning about food spoilage germs adapted to high temperature and humidity conditions in hot regions.
80. **Food Safety Culture and Germ Risk Management** Checking food safety culture in food service establishments and its impact on germ contamination control.

List of General Microbiology Project Topics

101. **Germ Variety in Extreme Places** Study of germ communities in high-temperature, high-salt, and low-acid environments for technology applications.
102. **Bio-plastic Making from Germ Sources** Making biodegradable plastics using bacterial natural plastics and making production processes work better.

103. **Germ Rust and Prevention Ways** Learning about germ-caused rust in factory systems and making biological stopping methods.
104. **Good Germ Development and Study** Finding and testing local good bacteria for human health uses with focus on safety and how well they work.
105. **Germ Bio-fuel Making Better** Making bioethanol and biodiesel production better using changed germs and process improvement techniques.
106. **Environment Bio-watching Using Germ Signs** Making germ-based watching systems for checking environment pollution and ecosystem health.
107. **Germ Cleanup of Contaminated Sites** Using bio-cleanup technologies for cleaning oil spills, heavy metal contamination, and organic pollutants.
108. **Germ Chemical Making for Medicine Uses** Finding and making germ secondary chemical production better for drug discovery and development.
109. **Bacterial Cell Factory Engineering** Changing bacterial systems for better production of factory chemicals and medicines.
110. **Germ Interaction Networks in Natural Communities** Learning about germ community structure and function in soil, water, and plant-associated environments.
111. **Germ-Fighting Chemical Discovery from Ocean Germs** Exploring ocean germ variety for new bioactive chemicals with treatment potential.
112. **Germ Electric Technologies** Making germ fuel cells and electric breakdown systems for waste treatment and energy making.
113. **Bio-control Agents for Plant Disease Management** Finding and studying helpful germs for biological control of plant disease germs.
114. **Germ Community Response to Climate Change** Learning how changing environment conditions affect germ variety and ecosystem functions.
115. **Factory Chemical Making and Uses** Making germ chemical production processes better and their uses in various factory sectors.
116. **Germ Bio-sensor Making** Engineering bacterial bio-sensors for finding environment pollutants and toxic chemicals.
117. **Fermentation Process Scale-Up and Making Better** Moving lab-scale fermentation processes to factory production with focus on money-making ability.
118. **Germ Color Making for Natural Colorants** Making germ processes for production of natural colors as alternatives to fake dyes.
119. **Bacterial Gene Mining for Bio-active Chemicals** Computer ways for identifying chemical-making gene groups and predicting natural product structures.
120. **Germ Community Engineering for Better Function** Design and building of fake germ communities with improved performance characteristics.

Agricultural Microbiology Project Topics

121. **Root Area Germ Mix and Plant Health** Learning about helpful germ communities in plant root zones and their role in disease stopping and nutrient availability.
122. **Bio-fertilizer Making and Field Uses** Making germ treatments for improving soil fertility and crop productivity under sustainable agriculture practices.
123. **Plant Growth-Helping Bacteria Study** Finding and mechanism studies of bacteria that help plant growth through hormone making and nutrient dissolving.

124. **Soil Germ Mix Response to Farm Practices** Impact checking of regular and organic farming practices on soil germ variety and ecosystem functions.
125. **Nitrogen-Fixing Bacteria in Crop Making** Making biological nitrogen fixing better in cereal crops through treatment with nitrogen-making bacteria.
126. **Mushroom Root Partnerships and Crop Performance** Learning about mushroom root fungi and their partnership relationships with farm crops for improved yield.
127. **Bio-control of Soil Plant Disease Germs** Making germ enemies for stopping fungal and bacterial plant diseases in farm systems.
128. **Germ Breaking Down of Farm Pest Chemicals** Study of pest chemical-breaking germs and their potential for bio-cleanup of contaminated farm soils.
129. **Compost Germ Mix and Soil Health Making Better** Study of germ succession during composting processes and the impact of compost use on soil biology.
130. **Drought Stress Help by Plant-Associated Germs** Learning germ mechanisms that help plants cope with water stress and improve drought tolerance.
131. **Organic Matter Breaking Down and Nutrient Cycling** Role of soil germs in organic matter breakdown and nutrient release for plant uptake.
132. **Seed Germ Mix and Sprouting Help** Study of seed-associated germs and their contribution to seed sprouting and seedling establishment.
133. **Germ Phosphate Dissolving for Crop Nutrition** Finding and use of phosphate-dissolving bacteria for improving phosphorus availability in farm soils.
134. **Plant Disease Fighting Caused by Helpful Germs** Learning about system fighting mechanisms triggered by plant growth-helping germs.
135. **Germ Treatment Quality Control and Standardization** Making quality assurance protocols for commercial germ treatments used in agriculture.
136. **Cover Crop Germ Mix and Soil Improvement** Study of germ communities associated with cover crops and their contribution to soil health.
137. **Salt Stress Help by Salt-Tolerant Bacteria** Study of salt-tolerant bacteria that help plants survive in salty farm conditions.
138. **Germ Bio-films in Plant Root Settlement** Learning about bio-film formation by helpful bacteria on plant roots and its significance for plant-germ interactions.
139. **Integrated Pest Management Using Germ Agents** Making germ-based pest control strategies as components of sustainable pest management programs.
140. **Climate-Strong Agriculture Through Germ Interventions** Use of germ technologies to develop climate-adaptive farm systems for changing environment conditions.

MSc Microbiology Project Topics (Advanced)

141. **CRISPR-Cas System Engineering in Bacteria** Use of special DNA cutting technology for bacterial gene editing and chemical pathway engineering.
142. **Single-Cell Gene Study of Environment Germs** Advanced techniques for gene study of unculturable germs and their chemical-making abilities.
143. **Fake Biology Circuit Design in Germs** Engineering genetic circuits for controlling bacterial behavior and chemical pathways in technology uses.

144. **Tiny Fluid Uses in Germ Research** Making tiny fluid devices for high-speed screening and study of germ cells and communities.
145. **Evolution Changes of Medicine-Fighting Ability** Learning resistance evolution mechanisms and prediction of resistance emergence in bacterial populations.
146. **Chemical Study of Germ Systems** Complete chemical profiling of bacterial cultures under different growth conditions and stress responses.
147. **Protein Engineering for Factory Technology** Directed evolution and rational design of germ chemicals for better performance in factory uses.
148. **Germ Dark Matter Exploration** Learning about uncultured germ variety using culture-independent approaches and new cultivation strategies.
149. **Systems Biology Approaches in Germ Study** Integration of gene, RNA, and protein data for understanding complex germ systems.
150. **Nano-technology Uses in Germ Study** Making nanotechnology-based tools for germ detection, drug delivery, and bio-sensing uses.
151. **Artificial Intelligence in Germ Research** Use of machine learning algorithms for prediction of germ behavior and making technology processes better.
152. **Germ Group Engineering** Design and making better of defined germ groups for better performance in technology uses.
153. **Light-genetics in Bacterial Systems** Making light-controlled bacterial systems for precise space-time control of cellular functions.
154. **Germ Protein Study and After-Translation Changes** Learning protein expression patterns and changes in bacteria under various environment conditions.
155. **Bacterial Stress Response Networks** Systems-level study of stress response pathways and their connections in bacterial cells.
156. **Germ Bio-geography and Spreading Mechanisms** Learning spatial distribution patterns of germs and factors influencing germ spreading.
157. **Regulatory RNA in Bacterial Gene Expression** Study of small regulatory RNAs and their roles in controlling bacterial gene expression and characteristics.
158. **Germ Chemical Ecology and Signaling** Learning chemical communication systems and their ecological significance in germ communities.
159. **Advanced Fermentation Process Control** Setting up process analytical technology and artificial intelligence for optimal fermentation process management.
160. **Germ Fake Chemistry and Bio-synthesis** Engineering bacterial systems for production of complex natural products and fake chemicals through bio-synthetic pathways.