

DEPARTMENT OF MICROBIOLOGY

Overview:

Microbiology is a basic science that constitutes the knowledge of various micro-organisms. In a medical college, medical microbiology deals with role microbial agents in the pathogenesis of infectious diseases. Microbiological investigations by 7 service laboratories which helps a physician or surgeon to understand the nature of infection and possible treatment according to antimicrobial susceptibility test. Microbiology enables students correlate between immunology and pathogenesis of a disease and its treatment, contributing to the development of the core skills of a competent doctor. Microbiology department is a full-fledged department in Government Medical College, Nandurbar which conducts quiz programmes and student seminars on regular basis. The department is equipped to fulfill students need and make them well trained medical professionals, especially in accordance with the latest CBME based curriculum

Curriculum:

Curriculum as per the MUHS Nashik, available at <https://www.muhs.ac.in/upload/syllabus/Second%20MBBS%20Microbiology%20Syllabus%20030621.pdf>

Goal:

The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

Objectives:

Knowledge:

At the end of the course, the student should be able to:

1. List pathogenic micro-organisms (bacteria, viruses, parasites, fungi) and describe the pathogenesis of the diseases produced by them.
2. Describe the mechanisms of immunity to infections.
3. Acquire knowledge on suitable antimicrobial agents for treatment of infections and scope of immunotherapy and different vaccines available for prevention of communicable diseases.
4. Apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections.

Skills:

At the end of the course, the student should be able to:

1. Use the correct method of collection, storage and transport of clinical material for microbiological investigations.
2. Plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent.
3. Identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.

4. Perform commonly employed bed-side tests for detection of infectious agents such as blood film for malaria, filaria, gram staining, AFB staining, Albert staining and stool sample for ova & cyst.

Integration:



The clinical, therapeutic, and preventative aspects of infectious diseases of national concern should be understood by the student.

List of Teaching Faculty staff

Head of the Department -

Sr. No.	Name	Designation	Qualification	Email ID
1.		Professor and HOD		
2.		Associate Professor		
3.	Dr. Rahul G. Wadile	Assistant Professor	MBBS, MD	rahulwadile@rediffmail.com rahulwadile123@gmail.com
4.	Dr. Ravidas Vasave	Assistant Professor	MBBS, MD	ravidas.vasave.rv@gmail.com
5.		Assistant Professor		
6.	Dr. Swagat Shah	Junior Resident	MBBS	swagat.shah02@gmail.com

Faculty List -

Sr. No.	Designation	Photo	Faculty Details	
			Name	
1	Professor & HOD		Name	
			Qualification	
			Teaching experience	
			Medical Registration Number	
2	Associate Professor		Name	
			Qualification	
			Teaching experience	
			Medical Registration Number	
3	Assistant Professor		Name	Dr. Rahul G. Wadile
			Qualification	MD Microbiology
			Teaching experience	UG-12 Yrs./PG-7 Yrs.
			Medical Registration Number	2002/02/673
4	Assistant Professor		Name	Dr. Ravidas A. Vasave.
			Qualification	MD Microbiology
			Teaching experience	UG-4 Yrs. & 6 Month
			Medical Registration Number	2012/05/1320

List of Non-Teaching Faculty staff

Sr. No.	Name	Designation
1.	Mr. Yuvraj K. Endait	Lab Technician
2.	Ms. Nisha M. Vasave	Lab Technician
3.	Mr. Akash Valvi	Lab Technician
4.	Ms. Aarti B. Nandedkar	Lab Technician
5.	Ms. Kalpana Y. Endait	Lab Technician
6.	Mr. Mahendra M. Padvi	Lab Technician
7.	Mr. Viraj Mandlik	Lab Technician
8.	Mr. Mayur Mandlik	Lab Technician
9.	Mr. Yogesh S.Vasaikar	Jr. Clerk
10.	Mr. Vinod Pawara	Lab Attendant
11.	Mr. Praful Vasave	Lab Attendant
12.	Mr. Krishna Mahajan	Lab Attendant
13.	Ms. Rangita Gavit	Peon

Duties and Responsibilities

Professor in Microbiology:

1. To teach UG & PG students in subject.
2. To take tutorial classes.
3. To arrange teaching programme of department in consultation with dean.
4. To guide & conduct research in subject.
5. To be in charge as Head of Department (HOD).
6. To do any other work that may be assigned to him by Dean.

Associate Professor in Microbiology:

1. To look after the work of Microbiology.
2. To be responsible for lecture, demonstration & practical classes in the subject & any other department work assigned by professor & Dean.
3. To take part in research work & also to help professor in supervision of department work, store & verification.
4. To perform any other duties so may be allotted by the professor & Dean in the interest of departmental work.

Assistant Professor in Microbiology:

1. To assist the professor in teaching the subject.
2. To conduct tutorials and demonstration.
3. To arrange and supervise the practical in the department.
4. To prepare samples for laboratory practical when required.
5. To assist professor in research.
6. To be responsible for the stores and laboratories under his charge.
7. To do duties assigned by the professor or Dean of the college.

FACILITIES

The department of Microbiology is well equipped and consist of following laboratories: 1. Bacteriology laboratory, 2. Mycology laboratory, 3. Parasitology Laboratory, 4. Virology Laboratory, 5. Immunology Laboratory, 6. Mycobacteriology Laboratory, 7.Serology Laboratory All the laboratories are provided with adequate infrastructure and equipment's to accommodate 25 students. Equipment's: The department has all the necessary equipment's as per NMC norms.

RESEARCH & PUBLICATIONS

Dr. Rahul G. Wadile –

1. Dr. Rahul G. Wadile. Male Genitourinary Tract Infections Relationship with Infertility: A Bacteriological Study. Int. J Pharm Bio Sci. 2013 Oct; 4(4) (B): 913 – 917.
2. Wadile Rahul Gopichand, Jadhav Ujwala Babulal, Shinde Rahul Madhukar. Mycological Profile of Superficial Mycoses in North Maharashtra, India. International Journal of Health Sciences & Research Vol.3; Issue: 10; October 2013.90-94.
3. Rahul Gopichand Wadile, Ujwala Babulal Jadhav, Viraj Bhate. Prevalence and Risk Factors Associated with Intestinal Parasitic Infection among Children in Rural Dhule. Journal of Research in Medical Education & Ethics. Vol. 3, No. 3, November, 2013, pp-239-242.
4. Wadile RG, Jadhav UB, Bhate VM. Bacteriological Profile of Neonatal Septicaemia in a Rural Hospital. Journal of Research in Medical Education & Ethics. Vol. 4, No. 1, March, 2014, pp-83-87.
5. Varsha Tukaram Kalshetti, Surendra P. Wadgaonkar, Viraj M. Bhate, Rahul G. Wadile, Neha Haswani, S.T. Bothikar, Microbiological

- evaluation of mycotic keratitis in north Maharashtra, India: A prospective study. *Journal of Microbiology and Infectious Diseases*, 2015; 5 (3): 99-102.
6. Wadile Rahul Gopichand, Bhate Viraj Madhusudan and Kalshetti Varsha Tukaram, Bacteriological Profile of Chronic Suppurative Otitis Media. *Int. J. Curr. Microbiol. App. Sci* (2015) 4(6): 41-47.
 7. Wadile Rahul Gopichand, Bhate Viraj Madhusudan, Study of clinical spectrum and risk factors of neonatal candidemia. *Indian Journal of Pathology and Microbiology*, 58 (4); Oct -Dec 2015: 472 – 75.
 8. Varsha T. Kalshetti, Rahul Wadile, S.T. Bothikar, Vijay Ambade, V.M. Bhate, Study of fungal infections in diabetic foot Ulcer. *Indian J Microbiol Res* 2017;4(1):87-89
 9. Wadile Rahul Gopichand, Prevalence of ESBL in isolates of *Klebsiella pneumoniae* and *E. coli* in suspected cases of Neonatal septicemia in tertiary care hospital in North Maharashtra. *Ind. J. of current Micro. App. sci.* 2019; 8(5): 569-574.
 10. Wadile Rahul Gopichand, Mycological profile of otomycosis in tertiary care teaching hospital. *Ind. J. of current Micro. App. sci.* 2019; 8(7):1211-1216.
 11. Karuna Ahire, Rahul Wadile, Bhanupriya Pande, Deepak Shejwal, Mupirocin resistance patterns in staphylococcus isolates causing cutaneous and soft-tissue infections: An epidemiological study in a tertiary health-care facility, Dhule, Maharashtra. India, *Asian Journal of Medical Sciences* Nov 2023, 14 (11):1-7.

1. Ravidas Arjun Vasave, Shripad Taklikar, Sujata Baveja, A study of the microbial spectrum involved in skin and soft tissue infections in infants at tertiary health care center, Med Pulse International Journal of Microbiology, Print ISSN: 2550-7648, Online ISSN: 2636-4646, Volume 18, Issue 1, April 2021 pp 01-06.
2. Ravidas Arjun Vasave, Shripad Taklikar, Sujata Baveja, A Study of antibiotic susceptibility pattern of bacteria isolated from cases of skin and soft tissue infections of infants at tertiary health care center, MedPulse International Journal of Microbiology, Print ISSN: 2550-7648, Online ISSN: 2636-4646, Volume 19, Issue 1, July 2021 pp 06-11.

List of Equipments –

S.NO.	NAME OF THE ITEMS	No. Required	No. Available
(A)	For Student		
1.	Microscopes (Specified as in pathology)	As required	71 (Binocular) 6 (Monocular) 1 (Trinocular)
2.	Culture Plates/Petri Dishes	As required	50
3.	Glass wares including Pasteur Pipettes	As required	2
4.	Facility for heating slides	As required	10
(B)	General		
1.	Anaerobic apparatus	2	2
2.	Autoclave	2	2
3.	Balance Electronic Digital	1	1
4.	Biosafety Cabinet Type-2A	3	3
5.	BOD Incubator	1	1
6.	Centrifuge	3	3
7.	CO2 Incubator/Candle Jar	2	2
8.	Computer Unit	2	4
9.	Deep Freeze -20 ⁰ C & Deep Freezer -80 ⁰ C	1+1	1 +1
10.	Distilled water Plant	1	1
11.	Elisa Reader	1	1
12.	Elisa washer	1	1
13.	Hot Air Oven	2	2
14.	Incubator	2	2
15.	Lab Refrigerator (minimum 400 litres)	3	3

16.	Laminar flow	1	1
17.	Micrometer eye pieces 1	1	1
18.	Micrometer stage	1	2
19.	Microscope Binocular	Every Faculty	5
20.	Microscope with universal condenser containing oil immersion, Bright field, Phase Contrast & Dark ground	1	1
21.	pH determination apparatus	2	1
22.	Serum inspissators	1	1
23.	VDRL shaker	1	1
24.	Vortex Mixer	2	2
25.	Water bath with variable temperature	2	2
26.	Oil-immersion lens for student microscope	25	50
27.	Automated Blood Culture System	1	0
28.	Colony Counter	1	1
(C)	Consumables for Culture and Serological Diagnosis		
29.	Antibiotic Discs for Antibiotic susceptibility testing	As required	Not Available
30.	Antibiotic zone scale	As required	Not Available
31.	Antisera-Salmonella	As required	Not Available
32.	Antisera- <i>Shigella dysenteriae</i>	As required	Not Available
33.	Antisera- <i>Shigella flexneri</i>	As required	Not Available
34.	Antisera- Shigellasonnie	As required	Not Available
35.	Antisera- Vibrio cholerae	As required	Not Available
36.	ATCC strain- Enterococcus fecalis 29213	As required	Not Available
37.	ATCC strain- E. coli 25922	As required	Not Available
38.	ATCC strain- E. coli 35218	As required	Not Available
39.	ATCC strain-Pseudomonas aeruginosa 27853	As required	Not Available
40.	ATCC strain-Staohylococcus aureus 25923	As required	Not Available
41.	ATCC strain-Staphylococcus aureus 29213	As required	Not Available
42.	Bottles for blood culture	As required	Not Available

List of Library Books -

SR NO	ACC.N O.	AUTHOR	TITLE	EDITION	PUBLISHER	QTY
1	1726	AHLUWALIA JYOTICA	MEDICAL MICROBIOLOGY MADE EASY	1/E,2019	JPB	1
2	1729	AHLUWALIA JYOTICA	MEDICAL MICROBIOLOGY MADE EASY	1/E,2018	JPB	1
3	1734	BHUMBLA UPASANA	WORKBOOK FOR PRATICAL MICROBIOLOGY	2/E,2019	JPB	1
4	1735	BHUMBLA UPASANA	WORKBOOK FOR PRATICAL MICROBIOLOGY	2/E,2020	JPB	1

5	1739	BHUMBLA UPASANA	COMPETENCY BASED PRATICAL MANUAL FOR MICROBIOLOGY AS PER THE COMPETENCEY BASED CURRICULUM (MCI)	1/E,2021	JPB	1
6	1744	CHANDRA T JAYA	PARASITOLOGY EASY TO LEARN	1/E,2014	JPB	1
7	1745	CHANDRA T JAYA	PARASITOLOGY EASY TO LEARN	1/E,2015	JPB	1
8	1752	GAUTAM, DEEPAK	SECOND MBBS BUSTER MICROBIOLOGY	3/E,2019	JPB	1
9	1753	GAUTAM, DEEPAK	SECOND MBBS BUSTER MICROBIOLOGY	3/E,2020	JPB	1
10	1760	GHOSH SOUGATA	PANIKER'S TEXTBOOK OF MEDICAL PARASITOLOGY AS PER THE COMPETENCY BASED MEDICAL EDUCATION CURRICULUM	9/E,2022	JPB	1
11	1762	GUPTE SATISH	VIVA AND RECENT ADVANCES IN MEDICAL MICROBIOLOGY	6/E,2016	JPB	1
12	1763	GUPTE SATISH	VIVA AND RECENT ADVANCES IN MEDICAL MICROBIOLOGY	6/E,2017	JPB	1
13	1768	GUPTE SATISH	THE SHORT TEXTBOOK OF MEDICAL MICROBIOLOGY (INCLUDING PARASITOLOGY AND ENTOMOLOGY)	11/E,2020	JPB	1
14	1772	GUPTE SATISH	THE SHORT TEXTBOOK OF MEDICAL MICROBIOLOGY (INCLUDING PARASITOLOGY AND ENTOMOLOGY)	11/E,2021	JPB	1
15	1778	HAWLEY/ZIEGLER	BRS MICROBIOLOGY & IMMUNOLOGY WITH POINT ACCESS CODES	6/E,2013	WOLTER	1
16	1774	HAWLEY/ZIEGLER	BRS MICROBIOLOGY & IMMUNOLOGY WITH POINT ACCESS CODES	6/E,2014	WOLTER	1

17	1781	KUMAR SURINDER	ESSENTIALS OF MICROBIOLOGY	1/E,2016	JPB	1
18	1784	KUMAR SURINDER	ESSENTIALS OF MICROBIOLOGY	1/E,2017	JPB	1
19	1786	KUMAR SURINDER	PRATICAL MICROBIOLOGY FOR MBBS STUDENTS	1/E,2018	JPB	1
20	1788	KUMAR SURINDER	PRATICAL MICROBIOLOGY FOR MBBS STUDENTS	1/E,2019	JPB	1
21	1792	MOHAN	TEXTBOOK OF DIAGNOSTIC	6/E,2018	ELSEVIER	1
22	1795	PATWARDHAN NEETA	HANDBOOK OF PRATICAL EXAMINATION IN MICROBIOLOGY	1/E,2016	JPB	1
23	1797	PATWARDHAN NEETA	HANDBOOK OF PRATICAL EXAMINATION IN MICROBIOLOGY	1/E,2017	JPB	1
24	1802	SASTRY APURBA S	ESSENTIALS OF PRATICAL MICROBIOLOGY	2/E,2021	JPB	1
25	1810	SASTRY APURBA S	ESSENTIALS OF PRATICAL MICROBIOLOGY	3/E,2021	JPB	1
26	1813	SASTRY APURBA SANKAR	ESSENTIALS OF PRATICAL MICROBIOLOGY	2/E,2019	JPB	1
27	1817	SASTRY APURBA SANKAR	ESSENTIALS OF PRATICAL MICROBIOLOGY	2/E,2020	JPB	1
28	1819	SENGUPTA MANIDEEPA	PRACTICALS IN MICROBIOLOGY	1/E,2016	JPB	1
29	1823	SENGUPTA MANIDEEPA	PRACTICALS IN MICROBIOLOGY	1/E,2017	JPB	1
30	1828	THANVEER P	EXAM PREPARATORY MANUAL FOR UNDERGRADUATES MICROBIOLOGY (VIRAT)	2/E,2016	JPB	1
31	1836	STEFAN	JAWETZ MELNICK & ADELBERG'S MEDICAL MICROBIOLOGY	28/E,2021	MGH	1
32	2759	ARORA D.R.	MEDICAL PARASITOLOGY 5ED	2020	CBS	1

			(PB 2020)			
33	2774	DAS S	MICROBIOLOGY PRACTICAL MANUAL (PB 2020)	2020	CBS O	1
34	2775	DAS S	MICROBIOLOGY PRACTICAL MANUAL (PB 2020)	2021	CBS O	1
35	2780	DE A.	ESSENTIALS OF MICROBIOLOGY 2ED (PB 2018)	2018	CBS Nbd	1
36	2781	DE A.	ESSENTIALS OF MICROBIOLOGY 2ED (PB 2018)	2019	CBS Nbd	1
37	2786	ANURADHA DE	PRACTICAL AND APPLIED MICROBIOLOGY 5ED (PB 2020)	2020	CBS NBD	1
38	2787	ANURADHA DE	PRACTICAL AND APPLIED MICROBIOLOGY 5ED (PB 2020)	2021	CBS NBD	1
39	2795	ARORA D.R.	MCQS IN MICROBIOLOGY AND PARASITOLOGY (PB 2017)	2017	CBS	1
40	2795	ARORA D.R.	MICROBIOLOGY FOR MEDICAL LABORATORY TECHNOLOGY STUDENTS (PB 2018)	2018	CBS	1
41	2799	ARORA D.R.	MICROBIOLOGY FOR MEDICAL LABORATORY TECHNOLOGY STUDENTS (PB 2018)	2019	CBS	1
42	2804	ARORA B.	PRATICAL MICROBIOLOGY 2ED (PB 2020)	2020	CBS	1
43	2805	ARORA B.	PRATICAL MICROBIOLOGY 2ED (PB 2020)	2021	CBS	1
44	2809	D R ARORA	TEXTBOOK OF MICROBIOLOGY 6ED (PB 2020)	2020	CBS	1
45	2814	D R ARORA	TEXTBOOK OF MICROBIOLOGY 6ED (PB 2020)	2021	CBS	1
46	2818	ARORA D.R.	TEXTBOOK OF MICROBIOLOGY FOR DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY AND PARAMEDICAL COURSES (PB 2021)	2021	CBS	1

47	2819	ARORA D.R.	TEXTBOOK OF MICROBIOLOGY FOR DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY AND PARAMEDICAL COURSES (PB 2021)	2022	CBS	1
48	2824	ARORA D.R.	EXAM ORIENTED MICROBIOLOGY QUESTIONS AND ANSWERS (PB 2017)	2017	CBS	1
49	2828	ARORA D.R.	MICROBIOLOGY FOR NURSING AND ALLIED SCIENCES 2ED (PB 2018)	2018	CBS	1
50	2829	ARORA D.R.	MICROBIOLOGY FOR NURSING AND ALLIED SCIENCES 2ED (PB 2018)	2019	CBS	1
51	2836	BARADKAR V	TEXTBOOK OF MICROBIOLOGY (PB 2017)	2018	CBS	1
52	2844	COLE MF	UNIFYING MICROBIAL MECHANISMS SHARED STRATEGIES OF PATHOGENESIS	2020	TAYLOR & FRANCIS EXCEL	1
53	2843	COLE MF	UNIFYING MICROBIAL MECHANISMS SHARED STRATEGIES OF PATHOGENESIS	2021	TAYLOR & FRANCIS EXCEL	1
54	2847	COSSART P	THE NEW MICROBIOLOGY FROM MICROBIOMES TO CRISPR	2018	TAYLOR & FRANCIS	1
55	2846	COSSART P	THE NEW MICROBIOLOGY FROM MICROBIOMES TO CRISPR	2019	TAYLOR & FRANCIS	1
56	2850	DENYER S.P.	HUGO AND RUSSELLS PHARMACEUTICAL MICROBIOLOGY 8ED (PB 2019)	2019	WILEY INDIA	1
57	2849	DENYER S.P.	HUGO AND RUSSELLS PHARMACEUTICAL MICROBIOLOGY 8ED (PB 2019)	2019	WILEY INDIA	1

58	2855	GARG	EXPERIMENTAL MICROBIOLOGY (PB 2017)	2017	CBS	1
59	2856	GARG	EXPERIMENTAL MICROBIOLOGY (PB 2017)	2018	CBS	1
60	2858	GHOSH R R	ATLAS OF MEDICAL MYCOLOGY (PB 2019)	2019	CBS	1
61	2859	GHOSH R R	ATLAS OF MEDICAL MYCOLOGY (PB 2019)	2020	CBS	1
62	2865	NAGOBA B.S	STAINS AND STAINING PROCEDURES IN MICROBIOLOGY	2017	CBS	1
63	2869	NAGOBA B.S	STAINS AND STAINING PROCEDURES IN MICROBIOLOGY	2018	CBS	1
64	2871	RAJAN	ESSENTIALS OF MICROBIOLOGY (PB 2019)	2019	CBS	1
65	2874	RAJAN	ESSENTIALS OF MICROBIOLOGY (PB 2019)	2020	CBS	1
66	2880	SENGUPTA J	SYNOPSIS OF CLINICAL PATHOLOGY AND MICROBIOLOGY 8ED (PB 2017)	2017	CBS	1
67	2881	SENGUPTA J	SYNOPSIS OF CLINICAL PATHOLOGY AND MICROBIOLOGY 8ED (PB 2017)	2018	CBS	1
68	2886	AMANDEEP SINGH, SHUVANKAR MUKHOPADYAY	ILLUSTRATED PRACTICAL MICROBIOLOGY (PB 2017)	2017	CBS	1
69	2887	AMANDEEP SINGH, SHUVANKAR MUKHOPADYAY	ILLUSTRATED PRACTICAL MICROBIOLOGY (PB 2017)	2018	CBS	1
70	2889	VASANTHAKUMARI R.	TEXTBOOK OF MICROBIOLOGY 3ED (PB 2020)	2020	LWW RS NP	1
71	2890	VASANTHAKUMARI R.	TEXTBOOK OF MICROBIOLOGY 3ED (PB 2020)	2021	LWW RS NP	1
72	2893	VERMA N.	COMPETENCY BASED	2021	CBS	1

			LOGBOOK IN AETCOM MEDICAL HUMANITIES SPORTS AND EXTRACURRICULAR ACTIVITIES LOGBOOK FOR ALL PROFESSIONAL YEARS OF MBBS (PB 2021)			
73	2895	VERMA N.	COMPETENCY BASED LOGBOOK IN AETCOM MEDICAL HUMANITIES SPORTS AND EXTRACURRICULAR ACTIVITIES LOGBOOK FOR ALL PROFESSIONAL YEARS OF MBBS (PB 2021)	2022	CBS	1
74	2897	ANANTHANARAYAN	ANANTHANARAYAN AND PANIKER'S TEXTBOOK OF MICROBIOLOGY	2020	UNIVERSIS TIES PRESS	1
75	2897	ANANTHANARAYAN	ANANTHANARAYAN AND PANIKER'S TEXTBOOK OF MICROBIOLOGY	2021	UNIVERSIS TIES PRESS	1
76	3786	MURALIDHAR S., CYNTHIA NAUCORNLISSSEN	LIPPINCOTT ILLUSTRATED REVIEWS MICROBIOLOGY WITH ACCESS CODE (SAE) (PB 2019)	2019	LWW RS	1
77	3788	MURALIDHAR S., CYNTHIA NAUCORNLISSSEN	LIPPINCOTT ILLUSTRATED REVIEWS MICROBIOLOGY WITH ACCESS CODE (SAE) (PB 2019)	2020	LWW RS	1
78	3796	ENGELKIRK	BURTON'S MICROBIOLOGY FOR THE HEALTH SCIENCES, 11e (PB)	2019	LWW	1
79	3797	ENGELKIRK	BURTON'S MICROBIOLOGY FOR THE HEALTH SCIENCES, 11e (PB)	2020	LWW	1
80	4085	COLLEE	MACKIE & MCCARTNEY PRACTICAL MEDICAL MICROBIOLOGY , 14e	2006	ELSEVIER	1

81	4089	JAIN	MICROBIOLOGY PRACTICAL MANUAL, 1e	2019	ELSEVIER	1
82	4101	MURRAY	MEDICAL MICROBIOLOGY, 9e	2020	ELSEVIER	1
83	4103	NAGOBA	MEDICAL MICROBIOLOGY AND PARASITOLOGY: PREP MANUAL FOR UNDERGRADUATES, 4e	2020	ELSEVIER	1
84	4112	PARIJA	TEXTBOOK OF MICROBIOLOGY AND IMMUNOLOGY, 3e	2016	ELSEVIER	1
85	4116	LEVINSON	REVIEW OF MEDICAL MICROBIOLOGY AND IMMUNOLOGY	15/2018	MGH	1