



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2026-27

Programme: Master of Pharmacy (Pharmaceutical Analysis)

Semester: III

Course Code: 108300301

Course Title: Journal Club I

Course Objectives:

At completion of this course student shall be able to

1. Develop compilation skills through a thorough exploration of existing literature and surveys
2. Acquire capacity to read, interpret, and adeptly present published data, thereby improve their information literacy skills.
3. Develop proficiency in report writing skills

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
1	-	-	1	-	-	25/10	-	25/10

* J: Jury; V: Viva; P: Practical

Guidelines

Journal club-I is a common subject for all the M. Pharm Branches in semester- 3. As a part of this Journal Club-I, a student needs to carry out extensive literature search and prepare a review on the topic assigned to him/her by the guide. The students should submit review report of minimum 25 pages (hard copy and soft copy) to the institute.

Student Learning Outcomes (SLOs):

SLOs	Student Learning Outcome Statements	%Weightage
SL01	Describe active reading skills and interpret current published data.	25
SL02	Explain acquire critical thinking and problem-solving skills.	25
SL03	Explain compilation skills through an in-depth exploration of existing literature and surveys.	25
SL04	Determine proficiency in presenting recent advancements and future prospects for the identified topic.	25

Curriculum Revision:

Version:	1
Drafted on (Month-Year):	June 2020
Last Reviewed on (Month-Year):	March 2026
Next Review on (Month-Year):	March 2031



FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2026-27

Programme: Master of Pharmacy (Pharmaceutical Analysis)

Semester: III

Course Code: 108300302

Course Title: Research Methodology and Biostatistics

Course Objectives: Upon completion of the course the student shall be able to

1. Understand research problems, review of literature and study designs
2. Learn applications of biostatistics in pharmaceutical science
3. Understand CPCSEA guidelines for laboratory animal facilities
4. Learn the importance of medical research, declaration of Helsinki and ethics

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
4	-	-	4	25/10	75/30	-	-	100/50

* J: Jury; V: Viva; P: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	General Research Methodology General Research Methodology: Research, objective, requirements, practical difficulties, Review of literature, study design, types of studies, Strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.	12
2	Biostatistics Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests.	03
3	Biostatistics Parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (Wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.	05

4	Medical research History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines, ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.	10
5	CPCSEA guidelines for laboratory animal facility Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anaesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals	10
6	Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care.	05

Reference Books:

1	Research Methodology by C.R. Kothari
2	Compendium of CPCSEA 2018
3	Presentation skills - Michael Hallon- Indian Society for Institute education
4	Pharmaceutics Statistics by Sanford Bolton, Charles Bon
5	Patent laws by P. Narayan. Eastern law house publications
6	Pharmaceutical Experimental Design By Gareth Lewis and Didier Mathieu
7	Biostatistics and Research Methodology by Chandrakant Kokare, Nirali Prakashan
8	www.ipindia.nic.in , www.uspto.gov
9	www.cpcsea.nic.in
10	www.icmr.nic.in

Pedagogy:

Use ICT tools: Power point presentation (Laptop and projector, Smart Board)

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						R: Remembering; U: Understanding; A: Applying; N: Analyzing; E: Evaluating; C: Creating
R	U	A	N	E	C	
20	30	20	10	10	10	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Student Learning Outcomes (SLOs):

SLOs	Student Learning Outcome Statements	%Weightage
SL01	Find the problems, review literature, and study design.	40
SL02	Describe the knowledge of biostatistics in pharmaceutical science.	20
SL03	Describe importance of medical research, declaration of Helsinki and ethics.	20
SL04	Explain the CPCSEA guidelines for laboratory animal facilities.	20



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

Curriculum Revision:	
Version:	1
Drafted on (Month-Year):	June 2020
Last Reviewed on (Month-Year):	March 2026
Next Review on (Month-Year):	March 2031



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2026-27

Programme: Master of Pharmacy (Pharmaceutical Analysis)
Semester: III
Course Code: 108300303
Course Title: Discussion/ Presentation (Proposal Presentation)

Course Objectives:

At completion of this course student shall be able to

1. Understand selected research topic through in depth compilation of data
2. Develop critical thinking ability for potential challenges or issues related to their research topic
3. Effectively discuss and present their work

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
2	-	-	2	-	-	50/20	-	50/25

* J: Jury; V: Viva; P: Practical

Guidelines

The students are required to prepare a presentation of their proposed research work, based on which they shall be examined by the examiners. The presentation/discussion should cover key aspects, including the introduction of the chosen research topic, a review of the literature related to the selected research topic, the rationale behind the work, the aim and objectives of the proposed work, a work plan outlining various stages, the proposed materials and methods, and a list of references.

Student Learning Outcomes (SLOs):

SLOs	Student Learning Outcome Statements	%Weightage
SL01	Describe the skill to find research gaps and define research problems through a comprehensive review of the literature.	25
SL02	Find the propose research problem solution based on rationale.	25
SL03	Select delivery of presentations using ICT tools.	25
SL04	Interpret the answer of the queries raised by examiners.	25

Curriculum Revision:

Version:	1
Drafted on (Month-Year):	June 2020
Last Reviewed on (Month-Year):	March 2026
Next Review on (Month-Year):	March 2031



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2026-27

Programme: Master of Pharmacy (Pharmaceutical Analysis)

Semester: III

Course Code: 108300304

Course Title: Research Work

Course Objectives:

At completion of this course student shall be able to

1. Perform literature review and articulate research proposal
2. Learn various instruments used in research
3. Develop skills to collect and compile data in form of research report

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
-	-	28	14	-	-	50/20	300/120	350/175

* J: Jury; V: Viva; P: Practical

Guidelines

Student shall undertake a research project under the supervision of a teacher. Student will gather information, start performing research work, compile data in the form of report and give presentation on the selected topic.

Student Learning Outcomes (SLOs):

SLOs	Student Learning Outcome Statements	%Weightage
SL01	Determine the research problem, rational of research project with defined objectives.	25
SL02	Find the skills of planning to execute the proposed research work.	25
SL03	Select the tools for data collection and analysis.	25
SL04	Determine the ability to write research report.	25

Curriculum Revision:

Version:	1
Drafted on (Month-Year):	June 2020
Last Reviewed on (Month-Year):	March 2026
Next Review on (Month-Year):	March 2031