



## FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2020-21

**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 need 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

### Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Develop active reading skills and interpret current published data	25
CO-2	Acquire critical thinking and problem-solving skills.	25
CO-3	Gain compilation skills through an in-depth exploration of existing literature and surveys	25
CO-4	Showcase proficiency in presenting recent advancements and future prospects for the identified topic.	25

### Curriculum Revision:

Version:	1
Drafted on (Month-Year):	June 2021
Last Reviewed on (Month-Year):	June 2021
Next Review on (Month-Year):	June 2026



## FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2020-21

**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	-	-	100/40

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

### Detailed Syllabus:

Sr.	Contents	Hours
1	<b>General Research Methodology</b> 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	<b>Biostatistics</b> Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, 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.	8



3	<b>Medical research</b> 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
4	<b>CPCSEA guidelines for laboratory animal facility</b> 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
5	<b>Declaration of Helsinki:</b> History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care.	5

### 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	www.ipindia.nic.in, www.uspto.gov
8	www.cpcsea.nic.in
9	www.icmr.nic.in

### Pedagogy:

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

### 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	50	30	-	-	-	

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.

### Course Outcomes (CO):

Sr.	Course Outcome Statements	% Weightage
CO-1	Identify problems, review literature and study design	40
CO-2	Apply knowledge of biostatistics in pharmaceutical science	20
CO-3	Understand importance of medical research, declaration of Helsinki and ethics	10
CO-4	Understand CPCSEA guidelines for laboratory animal facilities	30



**CVM**  
**UNIVERSITY**

**Aegis: Charutar Vidya Mandal (Estd.1945)**

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

### 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	-	50/20

\* 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.

### Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Demonstrate the skill to find research gaps and define research problems through a comprehensive review of the literature.	25
CO-2	Propose research problem solution based on rationale	25
CO-3	Deliver presentations using ICT tools	25
CO-4	Satisfactorily answer the queries raised by examiners	25

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# CVM UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

## FACULTY OF PHARMACEUTICAL SCIENCES

Effective from Academic Batch: 2020-21

<b>Programme:</b>	<b>Master of Pharmacy (Pharmaceutical Analysis)</b>
<b>Semester:</b>	<b>III</b>
<b>Course Code:</b>	<b>108300304</b>
<b>Course Title:</b>	<b>Research Work</b>

### 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	350/140

\* 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 topic given.

### Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Identify the research problem, rationale of research project with defined objectives.	25
CO-2	Acquire skills of planning to execute the proposed research work	25
CO-3	Identify the tools for data collection and analysis	25
CO-4	Develop ability to write research report	25

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