


## DEPARTMENT OF VETERINARY PHYSIOLOGY AND BIOCHEMISTRY

### PROFILE

Established in 1964 as the then Physiology and Biochemistry Department, at present the renamed Department of Veterinary Physiology and Biochemistry. Department offers 3 different courses at undergraduate level in Veterinary Physiology and 3 different courses in Veterinary Biochemistry; 10 different courses at Master's in Veterinary Physiology and 13 in Veterinary Biochemistry and the same number of courses at Ph.D. levels in Veterinary Physiology and Veterinary Biochemistry. So far 10 and 3 students have earned their M. V. Sc. and Ph.D. degrees, respectively.

#### FACULTY AT PRESENT:

Sr. No	Name	Designation	Specialization	Phone (O)	Cell No	Inter Com No.	E-Mail
1	Dr. Avinash M.Pande (Ph.D.) 	Professor & Head	Veterinary Physiology & Biochemistry	02692 225936	9408630969	936	<a href="mailto:ampande@aau.in">ampande@aau.in</a> ampande1957@yahoo.co.in
2	Dr. S.P.Madhira (Ph.D.) 	Assistant Professor	Veterinary Physiology & Biochemistry	02692 225937	9227420829	937	spmadhira@aau.in
3	Dr. M.M.Pathan (Ph.D.) 	Assistant Professor	Veterinary Physiology & Biochemistry	02692 225937	7878392773	937	drmohsinvets@aau.in drmohsinvets@gmail.com

## MAJOR ACTIVITIES

### (I) Teaching

#### A. UG Courses

##### (a) Veterinary Physiology

Sr. No.	Name of Course	Course No.	Credits
1	Veterinary Physiology - I	VPB -111	2+1
2	Veterinary Physiology - II	VPB - 121	2+1
3	Veterinary Physiology - III	VPB - 221	3+1

##### (b) Veterinary Biochemistry

Sr. No.	Name of Course	Course No.	Credits
1	General Veterinary Biochemistry	VPB -112	1+1
2	Veterinary Intermediary Metabolism	VPB - 122	2+1
3	Animal Biotechnology	VPB - 321	2+1

#### B. PG Courses

##### (a) Veterinary Physiology

Sr. No.	Name of Course	Course No.	Credits
1.	Physiology of Digestion	VPY - 601	2+1
2.	Cardiovascular and Respiratory Physiology	VPY -602	2+1
3.	Renal Physiology and Body fluid dynamics	VPY -603	2+1
4.	Haematology	VPY -604	2+1
5.	Vitamins and Minerals in Animal Physiology	VPY -605	2+0
6.	Physiology of Animal Reproduction	VPY -606	2+1
7.	Clinical Physiology	VPY -607	2+1
8.	Neuromuscular Physiology	VPY -608	2+1
9.	Chemical Bioregulation in Physiological Functions	VPY -609	3+0
10.	Research Techniques in Veterinary Physiology	VPY -610	0+2
11.	Master's seminar	VPY -691	1+0
12.	Master's research	VPY -699	20
13.	Applied Physiology of Body fluids and Electrolytes	VPY -701	2+1
14.	Physiology of Animal Behaviour	VPY -702	2+0
15.	Comparative Physiology of Ruminant Digestion	VPY -703	2+1
16.	Advances in Neuroendocrinology	VPY -704	2+1
17.	Myophysiology and Kinesiology	VPY -705	2+1
18.	Avian Physiology	VPY -706	2+1
19.	Physiology of Lactation	VPY -707	2+1
20.	Advances in Environmental Physiology and Growth	VPY -708	2+1
21.	Advances in Rumen Microbiology and	VPY -709	2+1

	Metabolism		
22.	Advances in Immunophysiology	VPY -710	2+1
23.	Physiology of Stress	VPY -711	2+1
24.	Special Problem	VPY -790	0+2
25.	Doctoral Seminar – I	VPY -791	1+0
26.	Doctoral Seminar – II	VPY -792	1+0
27.	Doctoral Research	VPY -799	45

**(b) Veterinary Biochemistry**

Sr. No.	Name of Course	Course No.	Credits
28.	Chemistry of Animal cell	VBC - 601	2+0
29.	Techniques in Biochemistry	VBC -602	0+2
30.	Application of Genomics and Proteomics in Molecular Biology	VBC -603	2+0
31.	Biochemistry of Biomolecules:Carbohydrates, Lipids and Membrane Structure	VBC -604	2+0
32.	Enzyme Catalysis, Kinetics, Inhibition and Bioregulation	VBC -605	2+0
33.	Metabolism – I : Carbohydrate and Lipids	VBC -606	2+0
34.	Metabolism – II : Nucleic acids and Amino acids	VBC -607	2+0
35.	Metabolism – III : Integration and Regulation	VBC -608	2+0
36.	Central Dogma and Protein Function	VBC -609	2+0
37.	Clinical Biochemistry of Animals	VBC -610	2+1
38.	Biochemical Basis of Diseases of Domestic animals	VBC -611	2+0
39.	Endocrinology and Reproductive Biochemistry	VBC -612	2+0
40.	Biochemical Basis of Animal Reproduction	VBC -613	2+1
41.	Master's seminar	VBC -691	1+0
42.	Master's research	VBC -699	20
43.	Advances in Biochemistry of Ruminant Disorders	VBC -701	2+0
44.	Advances in Enzymology	VBC -702	2+0
45.	Advances in Clinical Biochemistry	VBC -703	0+2
46.	Membrane Dynamics and Signal Transduction in Animal Cell	VBC -704	2+0
47.	Methods in Protein Analysis	VBC -705	2+1
48.	Nutritional Biochemistry	VBC -706	2+0
49.	Advances in Intermediary Metabolism	VBC -707	2+0
50.	Endocrine control of fuel metabolism	VBC -708	2+0
51.	Diagnostic Enzymology – I	VBC -709	2+0
52.	Diagnostic Enzymology – II	VBC -710	2+0
53.	Biochemistry of Development and Differentiation	VBC -711	2+0
54.	Advances in Techniques in Biochemistry	VBC -712	1+1
55.	Advances in Mineral and Vitamin Metabolism and Related Diseases	VBC -713	2+0

56.	Special Problem	VBC -790	0+2
57.	Doctoral Seminar – I	VBC -791	1+0
58.	Doctoral Seminar – II	VBC -792	1+0
59.	Doctoral Research	VBC -799	45

## II. Research

- A. Research Projects Completed** -
- B. Ongoing Research Projects** -
- C. Number of M. V. Sc. and Ph. D. degrees awarded**
- M.V.Sc./M.Sc.: 10
  - Ph.D.: 3

### D. Research Publications

National Journal - 15

International - 1

- E. Research Recommendation** -

## III. Extension

### A. Refresher Training Courses / Summer-Winter Schools conducted

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### B. Seminar/Symposia/Conference/Workshop organized

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### C. Diagnostic Services / Clinical Camps/Farmers' advisory services/Ambulatory Clinics/Vaccination camps

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### D. NSS Camps/ Krishi Mahotsav/ PashupalanShibirs/Radio-TV Talks Delivered/Exhibitions/Farmers' meet-day/Kisan Call Center/Field Visits

#### Krishi Mahotsav

Faculty members of the department are regularly involved in Ravi and Kharif Krishi Mahotsav organized by Govt. of Gujarat.

### E. Expert services to State Government/Co-op. dairies/Other agencies/NGOs

**F. No. of Publications of Popular articles/Books/Booklets/Pamphlets/ Leaflets/ Souvenir/Compendium/ Chapters/ Lab Manuals/ Training Manuals etc.**

Lab Manuals - 06

**G. Visitors: -** -

**H. Any other items: -**

**Achievements:**

**A. Awards/Honours/Recognitions/Appreciations: -**

**B. Assignments as Subject Expert / Member (Selection Committee/Advisory Board)**

- 1) Experts in Selection panels/Examiners at various organizations

**C. Advanced Instrumentation / Lab Facilities**

- 1) BS – 120 Chemistry Analyzer
- 2) Flame Photometer
- 3) Thermocycler (1)
- 4) Gel electrophoresis apparatus
- 5) Deep fridge (-20<sup>0</sup> C)
- 6) Water bath with shaker (1)
- 7) Centrifuges of different capacities (Non-refrigerated) - 3
- 8) Water Distillation Plant
- 9) Microscopes (Binocular, Monocular)
- 10) Top pan Microbalances (1)
- 11) Gel doc system (1)
- 12) multimedia projector, Computers and accessories
- 13) Spectrophotometer
- 14) U V Spectrophotometer
- 15) Fully Automated Blood cell Counter

**D. Patents filed / Technology Developed:- --** -

**E. Other Recognitions (SRC/NSS/AGRESCO Convener/Hostel Rector etc.)**

- 1) Assistant Hostel Rector
- 2) Compilation of information related to ICAR Development grant of Anand Veterinary College, for DR Office, AAU, Anand

## **F. Future Thrust Areas:**

- 1) Endocrine aspect of animal growth , reproduction and lactation.
- 2) Climatic effect on animal physiological and biochemical constituents.
- 3) Assessment of novel biological markers and molecules in animal reproduction and lactation.
- 4) Use of advance biotechnological methods in prediction of animal physiology and behavior.
- 5) Stem cell research for animal health and productivity.
- 6) Development of modern diagnostic methods and therapeutic management of non infectious diseases like metabolic and deficiency diseases.
- 7) Role of minerals in animal physiology to establish macro and micro mineral profiles of livestock of all the climatic zone of Gujarat.
- 8) Hormonal profile of livestock in relation to certain reproductive and systemic diseases.
- 9) Studies on effect of neem extract on physiological and immunological parameters.
- 10) Enzyme kinetic studies on indigenous cattle of Gujarat.

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