

ANIMAL BEHAVIOR

ZOO-4513

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GENERAL INFORMATION

Location CP-103. For times & dates see course schedule.

Professor Philip Stoddard (who is just as happy being addressed by his first name)
office hours: Weds a.m. or after class (Not before class, please!)
office: HLS 219B
tel: 305-348-0378
email: stoddard@fiu.edu
mail box: OE 176, front office.

Textbooks

John Alcock, *Animal Behavior, 8th Edition*, 2005 Sinauer Assocs. (cheaper online)
Jan Pechenik, *A Short Guide to Writing About Biology, 6th Ed.*, Pearson-Longman

GOALS OF THIS COURSE

First, I expect that anyone taking a senior-level course in animal behavior will learn enough about the subject that they could attend a professional conference on the subject (e.g., the annual meeting of the Animal Behavior Society) and understand most of the presentations. Second, and more important for most of you, I have designed this course to help you advance significantly in your ability to analyze information and explain it in written form to others. If these goals are not acceptable to you, run (do not walk) to the nearest exit. Students who make it through this course (about half run for the door) insist it was a lot of work and more than worth the effort.

Further Musings:

Science involves the integration of fact, observation, theory, and method, a process that depends on the use of knowledge as tools. Science is as much the use of those facts as the ownership of them. A scientist must be able to organize and analyze information, and to communicate effectively with both the written and spoken word. (What do you suppose this means for you as a student in my class?)

Suggestion Box:

Suggestions on how to improve the course are welcomed at any time. All constructive criticism will be taken seriously. I would prefer if you stopped in and told me what was on your mind, but you can also stick anonymous notes in my mailbox if you are feeling shy. I see this course as a partnership. It incorporates the suggestions of many classes of students who took the course before you. I am responsible for running the course but you are responsible for getting a good education. You will profit if you give me feedback at every stage of the course. If you think of a better way to do something, tell me. If you are confused about something, ask me. If I have been unfair, unreasonable, inhumane, or insensitive, tell me. If you wait until the end of semester review to tell me what needs to be changed to help you learn better, you don't benefit from your feedback. It's your education!

"A college education is not a quantitative body of memorized knowledge salted away in a card file. It is a taste for knowledge, a taste for philosophy, if you will; a capacity to explore, to question, to perceive relationships between fields of knowledge and experience."

A. Whitney Griswold, president of Yale University

WORK REQUIRED OF YOU THIS TERM

Readings

Assigned readings in Alcock, Pechenik, and various scientific papers.

Readings assigned for a given date must be done **before class** to pass the daily quiz.

Daily Quizzes

Taken during the first 10 minutes of class (don't be late!). Each quiz is a single question that you must answer with a short, concise, and coherent paragraph.

Think lots, write little. Quiz questions cover concepts and details from the readings and lectures. I give **no make-up exams** but you can miss three quizzes with impunity because I drop the lowest three scores (one for each grandmother's funeral and one for that overturned tanker truck on the 826). If your observance of religious holidays will require you to miss class, please notify me at the beginning of the semester so I can accommodate your needs. Absence for other serious obligations (e.g., graduate school interviews) can be negotiated when they arise. If you want excused time off to vacation in Barcelona, forget it (unless you take me along). And I don't want to hear about campus parking or Miami traffic – you're not a freshman – leave home earlier. But if you have a fever, chills, vomiting, or uncontrollable flow of matter pouring from your respiratory or digestive systems, phone me but **do not come to class and expose your classmates** (nobody ever wrote a good quiz answer in that condition anyway).

Final Exam

A set of questions in the same format as the daily quiz.

Discussion Papers

- Write summaries of scientific papers, 12 in all (described later).

Review Paper

You will write a review paper on some topic. The most interesting reviews of animal behavior address some combination of Tinbergen's 4 areas: mechanism, function, development, & evolution. You should pick a conceptual topic that interests you (e.g., "Infanticide") rather than a general monograph about some organism (e.g., "Behavior of Great White Sharks, Behavior of Horses", or "Our Friend the Beaver"). Also, I'm really tired of reading about these perennial topics: Mating behavior/social organization of the great apes, predation behavior of wolves/large cats/sharks, stranding by whales/dolphins, and anything to do with sea turtles. You might need to restrict your focus to a topic in some group (e.g., "Infanticide in Rodents") but don't get too narrow (e.g., "Infanticide by Our Friend the Beaver"). Your paper should be about 12-15 pages double-spaced. To keep the workload down, you can choose the same topic as your discussion class (see below). The articles in Annual Review of Ecology and Systematics are good examples of

review papers. Following are some sample topics for your review paper. Use one of these or come up with another in the same general vein:

Sample review paper topics

- Brain differences in song learning
- Social influence on song learning
- Single genes and behavior
- Influence of social behavior on body function
- Learning and development of simple behaviors
- Sex differences in memory and use of space
- Neural control of sex or aggression in hamsters
- Brain maps and behavior
- ~~Masculine behavior, testosterone, and morphology in female hyenas~~
- Relation of sexual selection by predators
- ~~Regulation of worker behavior in honeybees~~
- Learning, memory, and foraging
- Observational learning
- Mechanisms of global orientation in migratory animals
- Neuroendocrinology of territorial behavior
- Molecular basis of individual recognition
- Molecular basis of intelligence and/or learning ability
- Nest parasites: why, how, development, evolution
- Limits on evolutionary arms races between predators and prey
- Evolution of female preference for male signals
- When are signals honest?
- Overt vs. covert sexual selection
- Why and how females choose the sex of their offspring
- What do females gain by extra-pair copulations? A review of theory & data
- When animals choose mates for “good genes”, what do they really get?
- The latest on leks
- Slave-making in ants
- Re-analysis of parent-offspring conflict
- Reversed sex roles – when males are choosy
- Reproductive competition among females
- How mammals recognize their relatives
- Coerced vs. voluntary cooperation among relatives
- Critical tests of evolutionary theory in human behavior
- The sexual life of the camel (it’s stranger than anyone thinks)

Between scientific papers, and term papers, you will do a fair bit of photocopying or printing, probably about \$20 worth by the time the semester is over. You can think of this expenditure as a cheap textbook.

IMPORTANT NOTES ON WRITTEN ASSIGNMENTS:

1a. **Keep a computer image of anything you hand in.**

1b. **Back up your course files on separate media every day.**

Make a second copy of your coursework files and keep that copy far from your computer. Computers get stolen or break. Flash drives fail without warning. Printers run out of ink (buy an extra black cartridge now). Computer related problems always occur the night before an assignment is due and DO NOT constitute a valid excuse for lost assignments or delayed submission.

2. Please type (Times New Roman 12 point).

3. **Use your spell checker, and your grammar checker (e.g., the one in MS Word).**

4. Stuff you hand in needs **only your name & date** (omit your student number and my name).

5. Anything due is due when you hand in your daily quiz (except discussion papers which are due at the end of discussion class). Don't wait for me to ask for your assignment, just bring it up to the front of the room and set it on the table in a pile. If you come in really late and I'm already lecturing, wait until the end of class. **Expect any late assignment to lose 1 grade point per day if I'm feeling generous.**

If you have a medical reason for late submission, please do not prostrate yourself; submit a written note in lieu of the item due. If you have an appointment, travel obligation, or religious holiday, you can submit your work early.

Incompletes require a medical excuse; procrastination and being overwhelmed don't count. You must have completed 75% of the work in good standing to be eligible for an incomplete.

6. All submissions must be on paper, but you must also send me an electronic copy before class (.doc or .pdf, but not .docx) with the following subject line and file name:

AB_your-last-name_assignment-name

example:

To: stoddard@fiu.edu

From: worried-aardvark99@papernapkin.com

Subject: AB_Perez_discussion paper 1

Attachments: AB_Perez_discussion paper 1.doc

The **underscore characters are required** to let my computer automatically file and sort these submissions alphabetically.

I run these files through a series of computerized searches that reliably detect plagiarism (see p. 19).

GRADES

I am a fair grader, neither easy nor capricious. The grade you receive will be based on the objective quality of your written work rather than the effort you expended. I award partial credit for work that addresses the issue partially, but a big fat zero for a page of writing that misses the point entirely. It follows, therefore, that you must learn to express yourself clearly in writing to do well in this course. The same is true for the entrance exams to graduate and professional schools, and probably your future profession as well. The good news is that I give you lots of opportunities to hone your skills.

Grade Scheme:

| | |
|-------|---|
| 30 | Daily Quizzes |
| 15 | Final Exam (or maybe none) |
| 20 | Discussion paper reviews |
| | <u>Review Paper</u> |
| 2 | Topic choice (easy points for choosing a topic ON TIME) |
| 3 | Bibliography |
| 3 | Preliminary Outline (1 page, hierarchical format) |
| 7 | Final Outline in hierarchical format (includes all details, refs, appendix) |
| 20 | Final manuscript (will not be accepted unless you have submitted your final outline first). |
| ----- | |
| 100 | |

Numeric Grade Equivalents:

| | |
|----|---------------------------|
| A | 93-100 |
| A- | 90-92 |
| B+ | 87-89 |
| B | 83-86 |
| B- | 80-82 |
| C+ | 77-79 |
| C | 73-76 |
| C- | 70-72 |
| D+ | let's not even go there – |

Grade Appeals:

Requests for recalculation of exam scores or reevaluation of grade must be made in writing and accompanied by the item in question. Recalculation of a grade is simple. To request an increase in an assigned score, submit a typed explanation of how your original submission fully and cogently addresses the question asked. If you don't agree with my reevaluation, come talk to me in my office.

DISCUSSION CLASS

Six classes will be devoted to a more engaging discussion than the lecture format permits. The topics are in the schedule.

1. Read the assigned readings in the text, then read the paper I have assigned you from the primary literature.
2. Find a second paper on that topic in the library. Pick one that relates meaningfully to the first (see below). Your choice will be graded.
3. Make a photocopy of your paper including the **all** the citations at the end. Write your name at the top of the first page.
4. You will write 2 summary critiques, one of the first paper, and a second one explaining how the 2nd paper expanded your understanding of the topic of the first paper. I will collect these summaries at the end of the discussion class along with the photocopy of your chosen paper. See instructions on the next page for critique format.
5. The day of the discussion class, students will divide into small groups (4-6) to engage in meaningful discussion of the papers.
6. The first 30 minutes will include discussion of the assigned paper and your individual papers. At that point I will hand out the quiz. You may discuss the quiz within your group, or between groups. Written answers are individual: all discussion must stop when you begin to write.

Grade scheme for summary critiques and paper selection:

Quality "as expected" = 4 points, +/- a point for better or worse than expected.

Paper selection, as expected = 2 pts.

Anything handed in late will not be accepted.

What constitutes a good paper choice?

- a) It should address or inform the topic of the assigned discussion paper.
- b) It must be primary literature, not a review (i.e., it should contain the following sections: introduction, methods, results, discussion).
- c) It should be intelligible and interesting to you.

How to find a good paper to read or review

Three step process for finding a good paper to review:

1. Read the assigned reading for this topic first.
2. Read the assigned discussion paper (see next page).
3. Check the references in the discussion paper, the textbook, and recommended further readings at the end of the textbook chapter. Look for papers by those authors or other papers mentioned in the discussion paper, especially papers published since the readings were published. Important sources for papers references include scientific databases accessible through the FIU library web site. Search these online indeces, available through the library web site under “Articles”

Web-of-Science

A slow search engine, but comprehensive.

John Alcock used Web-of-Science to research his textbook.

PubMed

Comprehensive for anything vaguely biomedical.

Good for mechanisms of behavior.

Google Scholar

PsychInfo

Especially strong on animal behavior.

Scientific Citation Index

Contained within the Web-of-Science, the SCI lists every scientific paper published, how often each paper has been cited and by whom. See Pechenik’s book for help with the SCI.

Assigned Discussion Class Papers

See online listing for PDF downloads.

Password is “AB”.

How to write a good summary critique:

Be sure to read what Pechenik has to say in chapters 1-6. ***

Read the paper once through, making sure you understand ALL the figures.

Then read it again, taking notes as you read. Pechenik has good hints on taking notes.

Format:

1. Your name

2. Full and correct citation of the paper thus:

Author (year published) Paper title. Journal Name volume: pages

for example:

Stoddard PK (1983) Violation of optimal nest placement: cliff swallows entombed in their own excrement. *Wilson Bulletin* 95: 674-675

3. Purpose of study including the big question asked or the hypothesis tested.

4. Brief summary of those methods & data that pertain to the question.

5. What the results mean in terms of question asked or hypothesis tested.
6. Questions or ideas you have about any of the above.

Summary Critiques

The review of the assigned paper should be about 2 pages long. The second review on the paper you chose should be about a page in length.

Typed, double spaced, left-justified, 12 point Times New Roman.

PROOF READ & SPELL CHECK.

Staple or paper clip pages together – **don't dog-ear.**

Include as the last item, the photocopy of paper you chose but not the photocopy of the paper I assigned.

SAMPLE PAPER CRITIQUE

Martina Perez
Discussion paper 2b
12 Feb. 1999

Nevison, C. M., Brown, G. R. & Dixson, A. F. 1997. Effects of altering testosterone in early infancy on social behaviour in captive yearling rhesus monkeys. *Physiol Behav*, 62, 1397-403.

Although the developmental basis for sex differences in social behavior is still poorly understood in old world primates (humans include), sex hormones very likely play a pivotal role. Neonatal males of some species experience a surge in testosterone that may be responsible for masculinizing subsequent behavior. Nevison and colleagues (1997) sought to alter the testosterone level in juvenile rhesus monkeys of both sexes to determine the effects of testosterone on expected social and socio-sexual behavior. They gave testosterone to experimental females during the first six months of life to mimic the natural testosterone surge experienced by male rhesus monkeys at that age. Experimental males received Meterelin, a GnRH agonist, to suppress the natural testosterone surge they would normally experience at that time. The authors compared results of this experiment with other behavioral studies (i) in which androgens were administered prenatally (Goy et al. 1988), (ii) in which males were castrated at the day of birth (Goy 1966), and (iii) in which neonatal males received GnRH antagonists to suppress testicular development. The authors interpreted differences between these studies in light of the hypothesis that the first-year testosterone surge in males is responsible for male-typical social, play, and socio-sexual behavior.

The authors compare their results with those of other studies, which, although they had similar aims, differed significantly in methods of investigation. Thus, differences in results cannot be said to be due solely to the difference in timing of the administration of androgens or androgen "suppressors". A clear example of this problem is seen in the portion of the study dealing with the experimental group of male rhesus monkeys, those whose androgen levels were artificially suppressed. The study with which Nevison et al. most frequently compare their findings was conducted using a GnRH antagonist. A GnRH antagonist suppresses the production of testosterone more directly and more quickly than a GnRH agonist, which increases testosterone production

thereby increasing negative biofeedback and ultimately diminishing testosterone levels. Therefore, differences in male behavior might not be due to the monkeys' neonatal androgen surge, or lack thereof, but might be due to the timing of the androgen surge or unexpected consequences of the controlling hormone.

This methodological inconsistency does not apply to the portion of the study, which compares female behavior, with or without artificial hormone alteration. The timing of administration of testosterone in this case is the only variable. This study found no difference between the behaviors of testosterone-treated and control females, save the tendency of control females to spend more time alone.

The overall results of the study showed no significant behavioral effect of the male-typical neonatal testosterone surge, an artificial testosterone surge induced in young females, or a lack of these respective testosterone surges. Differences in behavior were related to the sex of the young monkeys, with both treated and untreated males being more aggressive than either treated or control females. We should be cautious in accepting these findings because the androgens or androgen suppressers were not administered until the monkeys were 5 to 7 days old. Although the author states that "it seems unlikely that only the first few postnatal days are important for expression of normal behaviour", we should not dismiss the possibility that the first week of life is a sensitive period for androgen exposure. That possibility should be investigated before drawing a final conclusion on early life experience of androgens on sex differences in behavior. In fact, in the very next paragraph, the authors state that at one year "sex differences in ...behavior at this time are not due to ...concurrent levels of testosterone but reflect...developmental differences experienced earlier in life." It seems the authors do not accept their own conclusion that hormone exposure during the first few days of postnatal development are unimportant. Had treatments been administered immediately following birth, a more definitive conclusion could have been drawn from the results of this study in comparison to the others.

This study must be regarded as inconclusive. To interpret their results the authors have relied heavily on the results of similar studies, which differed from their own study in too many variables. Most importantly, the study should be repeated with administration of testosterone and GnRH antagonists (if comparison is to be made with the study by Goy 1966) at 1 day of age.

LITERATURE CITED

- Goy, R. W. 1966. Role of androgens in the establishment and regulation of behavioral sex differences in mammals. *J Anim Sci*, 25, 21-35.
- Goy, R. W., Bercovitch, F. B. & McBair, M. C. 1988. Behavioral masculinization is independent of genital masculinization in prenatally androgenized female rhesus macaques. *Horm Behav*, 22, 552-71.

What is good about this critique:

- 1. The student focused on the key question, the effect of the post-natal androgen surge on male-typical behavioral development.*
- 2. The methods are presented simply, with enough detail to get the gist of the experiment, but without belaboring small details not critical to the interpretation such as hormone doses, behavioral variables, etc.*
- 3. Nevison et al.'s paper, unlike most you will read in the peer-reviewed literature, has significant inconsistencies, which the reviewer brings to our attention in a direct manner, with clear illustrations.*
- 4. The reviewer wraps up the critique with a straight-forward suggestion for how a future study could address the short-comings of the study under review.*

YOUR REVIEW PAPER

Evaluation Criteria

Research

Thoroughness of your library research

25% of grade

You should cite a MINIMUM of 20 PRIMARY PAPERS

40 would not be surprising.

If you can't find 30 papers to read on your topic, choose a different topic.

Critical analysis of material

25% of grade

Don't just accept something because an author said so.

Are the results justified?

Can you identify controversies in the field?

Do other authors disagree?

Where is the field going?

What big questions remain?

Writing

organization, focus, clarity

25%

quality of written English

15%

scientific style

10%

To be handed in

(typed double spaced of course)

1. Paper proposal

a. Topic of your paper

Select a topic that

Is interesting to you.

Has enough written on it to make a good review

see #2 below

Is neither too broad nor too narrow.

You can work up and down the chain of breadth until you find a topic which works, e.g.,

Parental care

Parental care in vertebrates

Parental care in aquatic vertebrates

Parental care in fish

Parental care in teleost fishes

Parental care in cichlid fishes

Parental care in Rift Lake cichlids

Parental care in the genus *Astatotilapia* (formerly *Haplochromis*)

Is not centered on the following animals (I'm sick of reading about them!):

dolphins, whales, sharks, horses, big cats, wolves, domesticated animals of any sort.

b. Number of relevant papers you have found on the topic.

2. Bibliography

Preliminary list with full citations a MINIMUM OF 50 SOURCES

Must be in peer-reviewed journals or books

At least 75% must be in journals

Popular magazines do not count.

Format in the style of a standard scientific journal.

See chapter 4 Pechenik's "A Short Guide to Writing About Biology"

Use this simple bibliography format:

**Beecher MD, Stoddard PK, Campbell SE, Horning CL
(1996) Repertoire matching between neighbouring
song sparrows. *Animal Behaviour* 51: 917-923**

I STRONGLY ADVISE you to try ALL of the strategies and online databases I list above in the section on finding papers for Discussion Class. Be advised that missed literature always counts against a scholar in his or her final works (i.e., your paper and your grade).

Do not limit your search to FIU's holdings

You will probably use interlibrary loan and UM library to obtain everything you need.

Hint hint hint:

Interlibrary Loan is SLOWWW so **start early**.

UM's library charges \$5, RSMAS is free.

3. Preliminary Hierarchical Outline

1 or 2 page overview of proposed review paper that outlines the scope of the paper, describing the topics to be covered and the order.

Do you know what a hierarchical outline is?

This section is an example of one.

It was formatted automatically as an "outline" in Microsoft Word.

The easiest way to format such an outline is to use the outline mode of your word processor.

The word processor's outline lets you

move chunks of text around

indent blocks of text

collapse sections to see the big picture.

Do you know what happens to your outline if it is not in a hierarchical format?

I will give it back to you to do over!

4. Final Hierarchical Outline

When complete, this outline will contain all the detail you need to write your final paper. Your full outline should include

1. Everything fact and idea that will appear in the paper including citations for all factual material.

If you put in everything, the number of pages will be about the same as your final paper.

2. Bibliography

All materials cited (and only materials cited) must be listed here, alphabetized.

3. Appendix

You must include an appendix consisting of a photocopy of the first page of every article or book chapter you cite.

Evaluation Criteria

Overall organization

Cohesiveness of topic

Outline structure

Use a hierarchical ranking from general to specific.

Do not type out the text of a paper with gratuitous indentation.

Inclusion of detail

Thoroughness and depth of research

Citation of factual material in published literature

Critical analysis of material

5. The Final Paper

Before starting, read Pechenik's book:

Review Paper Style

It must be written as a review paper

For examples of good review papers, look at

The Quarterly Review of Biology

The Annual Review of Ecology and Systematics

Trends in Ecology & Evolution

Citations

You must cite sources for all statements you make.

Papers not cited do not appear in your final bibliography.

Consult a paper in the journal Animal Behaviour for examples of how source material should be cited.

Cite works in the text by author's name, rather than number,

Use of quotes

Quote an author's words directly only if the actual wording is critical, e.g., of historic note or controversial.

Otherwise, paraphrase, but attribute the idea or finding to that author.

Paper Format

Length

10-15 pages of text double spaced

not counting

cover page

bibliography

figures

Each page except the cover should have at the top

Page number

Your last name

Cover page includes

paper title

your name

I don't need your student ID number unless someone else in the class has the same name.

the date of print out

half page **summary** of your paper

No cute pictures

Tables and Figures

Should be of your own devising, not ones copied from the papers reviewed.

Appendix

Same as for the full outline, you must include an appendix consisting of a photocopy of the first page of every article or book chapter you cite.

Bind with a single staple or paperclip in the upper left corner

No fancy binders.

Text formatting

Double spaced

Preferred fonts (serif fonts only)

12 point Times New Roman

Margins

1.5" at left side (allows space for written comments), 1" at right

Justification

left justify

Do not fill justify

PLAGIARISM AND CHEATING

I don't know why students plagiarize: it's so easy to catch and I have no mercy. But it seems that every year I catch a student plagiarizing:

2008: A student failed, was not allowed to graduate, and had to do 40 hours of community service.

2006: A senior was suspended and was not allowed to graduate.

2005: I failed a pre-med student for plagiarism. I also failed the student who loaned him her paper to copy from. Neither was admitted to medical school.

These students cheated intentionally, but plagiarism can also happen unintentionally.

“UNINTENTIONALLY??? You mean I can get in trouble for something unintentional?”

Indeed you can. If you pass off as your own creation the words or ideas of someone else, you are considered dishonest, whether you did so intentionally or not.

While taking notes from a published paper, some have transcribed the words of that paper's author, then eventually forgotten that those words were his or hers and incorporated them directly into a manuscript. That is plagiarism and I will bust you for it if you do it.

Of course every word you write has been used before, but Professor Lou Bloomfield at the University of Virginia has discovered that the likelihood of two writers using six consecutive identical words of English is infinitesimally small unless one writer has copied from the other. How can you avoid this terrifying pitfall? Jan Pechenik's book *“A Short Guide to Writing About Biology”* has a helpful section on how to take notes in a way that will avoid plagiarism. READ IT.

Faculty at FIU have access to sophisticated plagiarism detection software. It works extremely well and I know tricks to make it work even better. If you copy anything, even from another student, I can detect it. Students have copied from online sources such as Wikipedia: super easy to detect. Students have changed random words, but my pattern-recognition software still detects it. Don't even think about using an Internet paper mill – they're in our licensed database.

THE BOTTOM LINE ON CHEATING & PLAGIARISM:

If I determine that you have cheated or plagiarized (including but not limited to six consecutive words that are identical to someone else's and not in quotes with attribution to their creator) I will be forced by the ethics of my profession to fail you in the course and report you to the university administration.

You can come to my office and beg forgiveness – I will give you a tissue to dry your tears, I might accept your apology, but you will have already cost me a night's sleep and I will still send my report to the Vice Provost for Academic Affairs.

If you think this policy is draconian, check out the following news article:

Indian Rebels Shoot Exam Cheats

BBC News Tuesday, 12 March, 2002, 16:52 GMT

Separatist rebels in the remote north-eastern Indian state of Manipur have shot a number of people suspected of helping students cheat in exams, according to police officials. At least seven people have been shot and injured in the past few days in what appears to be a draconian attempt to clean up the state's education system. The move has created panic among students, according to the Manipur police chief Abdul Ahad Siddiqui. Deputy police chief AK Parashar said the rebels were hoping to "win the sympathy" of local people who complain about government corruption.

The outlawed Kanglei Yawol Kanna Lup (KYKL) has said it carried out the attacks, saying it believed in quality education and would not allow anyone to get through exams by cheating. The KYKL is a separatist group fighting for an independent homeland for the Meiteis, the largest ethnic community in Manipur.

Two of the victims were exam invigilators, who were thought to be helping students frame their answers. Some were allegedly caught by militants as they tried to pass answers to students outside exam halls. According to Mr. Parashar, reaction from local people was muted because "many think the state's education system is rotten and there is a need for some drastic overhaul". "But we shall definitely not allow people to take the law into their hands," he added.

To be filled out and handed in

Information supplied on this sheet will not be given out to other students.

Name listed with FIU _____

Name you want to be called if different _____

Student # _____

email (write really clearly!) _____

* Local address _____

* Local phone number (s) _____

* How late you can be phoned if necessary _____

Permanent mailing address & phone if different from above

Class (e.g. junior, senior) _____

Major _____

Best language _____

2nd best language _____

What you want to do after you graduate _____

Biology courses taken _____

Other science courses taken _____

* * *

I have read the entire syllabus, I understand the rules and principles concerning plagiarism, and I promise to abide by those rules and principles.

Your signature

date