ERRATA: REAL ANALYSIS

ELIAS M. STEIN & RAMI SHAKARCHI

- **(p.3)** The **boundary** of E is the set of points which are in the closure of E but not in its interior.
- **(p.30)** The formula for the product fg should read:

$$fg = \frac{1}{4}[(f+g)^2 - (f-g)^2].$$

- **(p.32)** To complete the proof of Theorem 4.3 in fact requires the argument given on the following page.
- **(p.166)** In the middle of the page, the quantity $\|S_N(f) - S_M(f)\|$ should be replaced by $\|S_N(f) - S_M(f)\|^2$.
- **(p.169)** $\sum_{k=1}^{\infty} a_k e'_k$ should read $g = \sum_{k=1}^{\infty} a_k e'_k$.
- **(p.171)** At the bottom of the page, one should read $e^{inx} 2\pi a_n$ instead of $e^{inx} a_n$.
- **(p.170)** In the discussion of completion, the end of the last paragraph should read:
  To see that $\mathcal{H}$ is complete, let $\{F^k\}_{k=1}^{\infty}$ be a Cauchy sequence in $\mathcal{H}$, with each F^k represented by $\{f_n^k\}_{n=1}^{\infty}$, $f_n^k \in \mathcal{H}_0$. If we define $F \in \mathcal{H}$ as represented by the sequence $\{f_n\}$ with $f_n = f_{N(n)}^n$, where $N(n)$ is so that $|f_{N(n)}^n - f_j^n| \leq 1/n$ for $j \geq N(n)$, then we note that $F^k \to F$ in $\mathcal{H}$.
- **(p.188)** The definition of a compact set should read: "a set $X \subset \mathcal{H}$ is **compact** if for every sequence $\{f_n\}$ in X, there exists a subsequence $\{f_{n_k}\}$ that converges in the norm to an element *in* X". In other words, the sequence $\{f_n\}$ need not be bounded.
- **(p.194 - Exercise 3)** $\text{Re}(f, g)$ should be $2\text{Re}(f, g)$.
- **(p.301)** At the bottom of the page reference should be made to Theorem 1.3 in Chapter 3 (and not Theorem 4).
- **(p.302)** H_m should be replaced by $A_m(H)$, thus reading

$$\mu(E_\alpha) \leq \mu(E'_\alpha) \leq \mu(\{x : \ 2\sup_m |A_m(H)(x)| > \alpha\}).$$

- **(p.302)** One should read "we know by Theorem 5.1 that $A_m(f)$ converges".
- **(p.303)** In the proof of Corollary 5.6, the quantity $|P'(f) - \int_X f\, d\mu|$ should be replaced by $\|P'(f) - \int_X f\, d\mu\|_{L^1}$.
- **(p.312)** In Exercise 1, make the additional assumption that $\mathcal{M}$ is closed under finite intersections.

Date: August 14, 2009.

- **(p.321 - Problem 7*)** In the conclusion $\int_{E_0} f^{\#}(x)\,dx \geq 0$, the function $f^{\#}$ should be replaced by f.